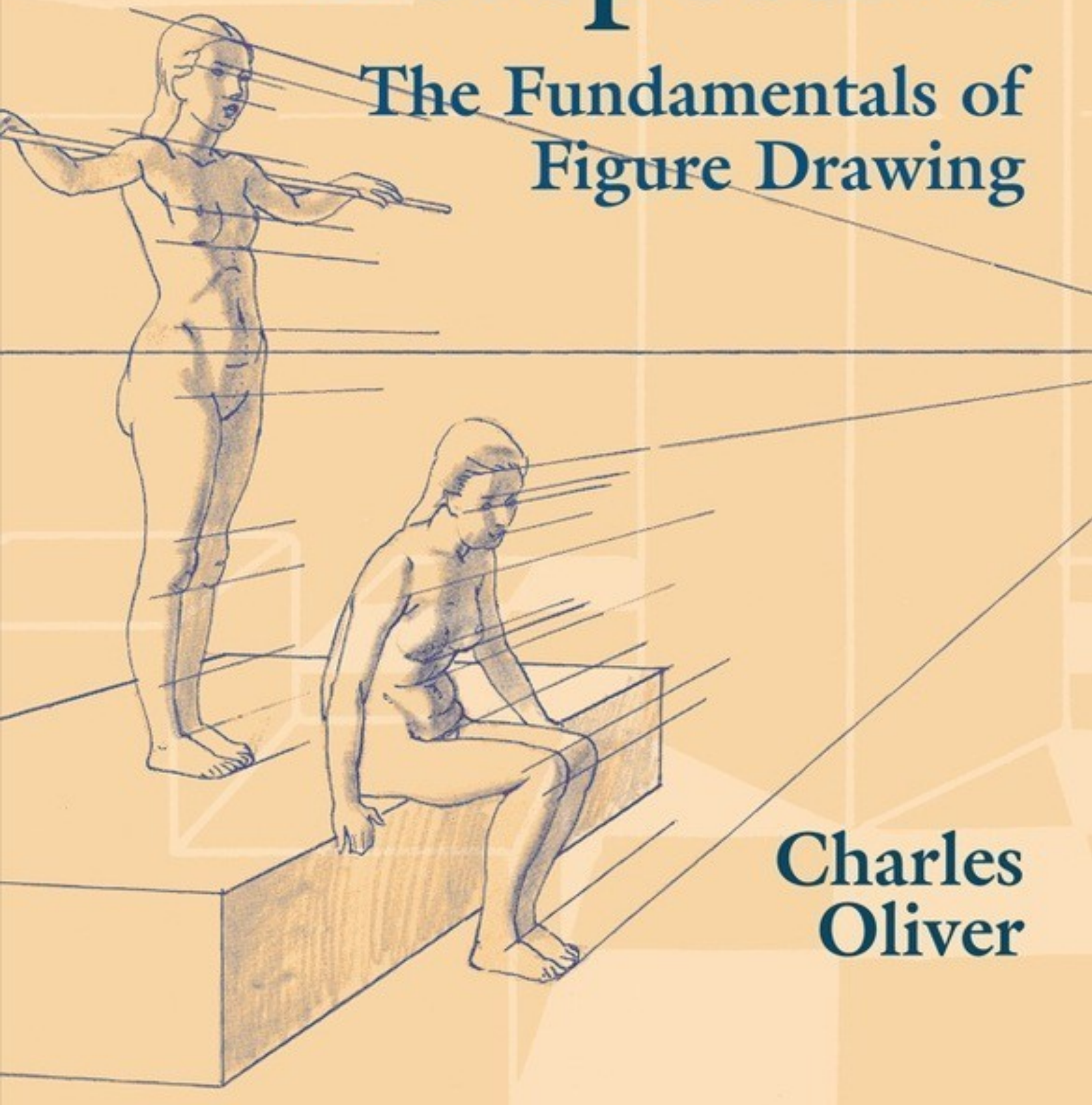
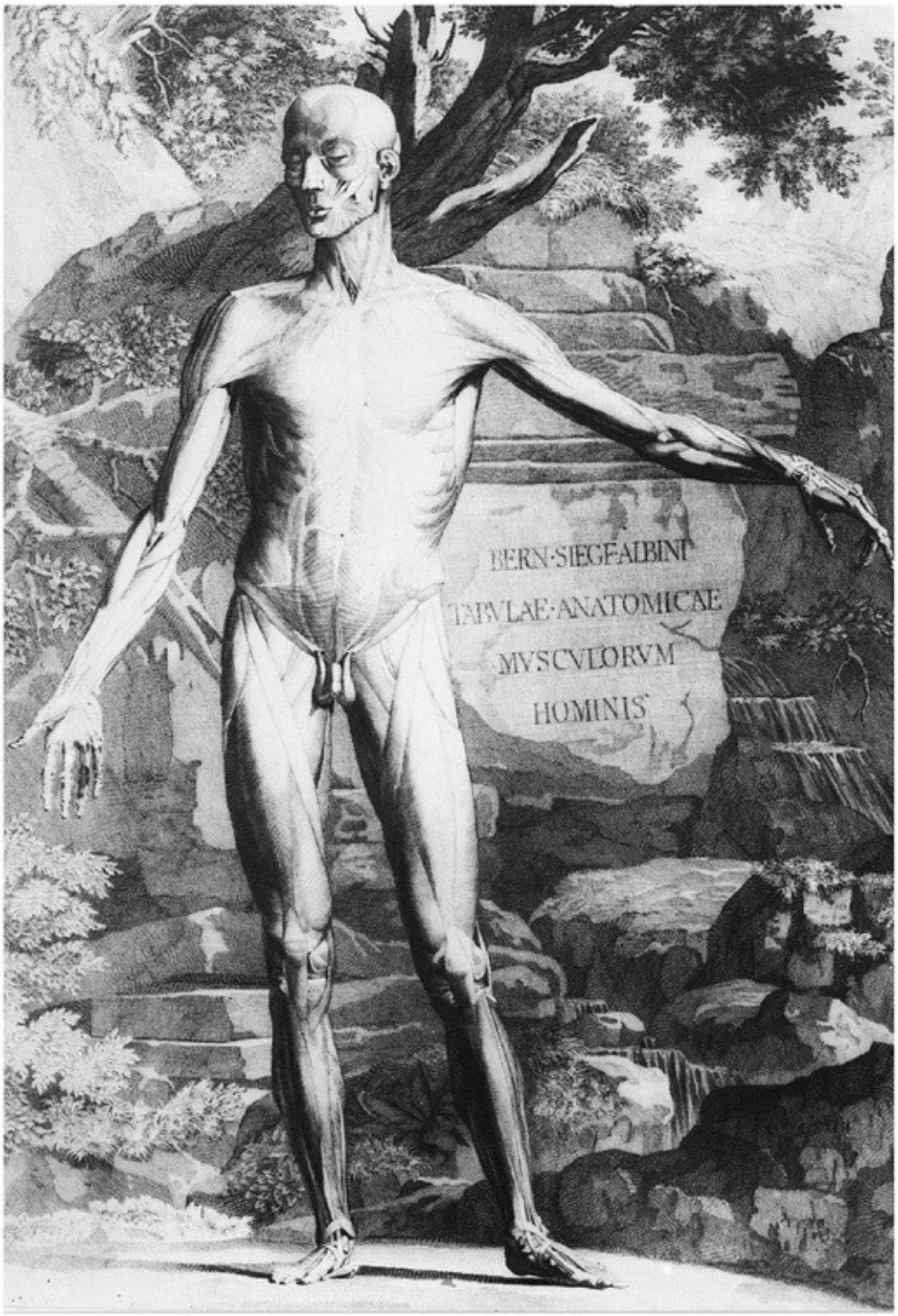
Anatomy and Perspective

The Fundamentals of Figure Drawing



Charles Oliver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ANATOMY AND PERSPECTIVE

The Fundamentals of Figure Drawing

CHARLES OLIVER

DOVER PUBLICATIONS, INC.
Mineola, New York

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'You must have no dependence on your own genius. If you have great talents, industry will improve them; if you have but moderate abilities, industry will supply their deficiency. Nothing is denied to well-directed labour: nothing is to be obtained without it.'

SIR JOSHUA REYNOLDS—Discourse II on Art.

Introduction

This book cannot teach you to draw the nude figure. Only constant practice can do that. Drawing and painting the figure is not merely an exercise in copying photographically, it is rather a re-creation of the form seen; a selection, made by the artist, of some features of the original. Thus when Ingres (fig. 70) draws in line only, the drawing is not unfinished because it lacks the light and shade of Seurat (fig. 33)—it is merely a different interpretation.

The human figure is a complex machine, a super machine, and like most machines is a thing of great beauty. The ancient Greek artists and their Renaissance successors realized this. Believing that man was the noblest of creatures they strove to seek the formula for the perfect form.

With the formation of the Academies in Europe, figure drawing became the most important part of the course, and it is only during the present century, with its completely new values in art, that figure drawing in the old academic sense has waned; anatomy and perspective are touched on only very lightly. Drawing from the nude figure is still a stimulating exercise calling for keenness of

observation and depth of perception. For those who wish, for various reasons, to draw the figure, it must be said again that only constant practice can yield results. Given this, the student will, I hope, find that the notes and drawings which follow provide a useful background and lead to further study.

W. R.

Sickert once said that whenever he saw a book on drawing he always bought it as there was bound to be some suggestion in it somewhere which was new to him. I hope that this book will contain something somewhere for each individual reader.

Every draughtsman develops his own ideas about drawing partly from his

early training and partly from his subsequent practice. I make no claim to being able to draw in many different manners and cannot impart tips for drawing in different ways. My own concept of drawing has been, and is, that of the appreciation of form in its three-dimensional aspect. It is this conception of figure drawing which I have offered to my students and it is largely for teaching purposes over many years that I have tried to crystallize these ideas into a coherent form.

In this book there will constantly be found an insistence on knowledge of the human figure—the sort of knowledge which I believe to be of use to the figure draughtsman. Many of the suggestions relate to general principles of drawing and although these are found in most good books on drawing I have restated them in my own way and with my own diagrams. Much of the space is allotted to the anatomy of the figure, but I am not a professional anatomist and this is not a treatise on anatomy. For those who wish to pursue anatomy further there are many excellent books, mainly old (see Bibliography, page 95). Not all good draughtsmen have had Michelangelo's profound appreciation of anatomy.

Some space is also devoted to various ideas of perspective and geometry, although for the deeper study of these subjects there are specialist books available.

My main aim is understanding: understanding of the form of the body—the ability to recognize that form as revealed by light and line, and how to express it graphically—the ability to create not merely the rhythm of lines, lovely as this

can be in the hands of a master, but to be able to establish a rhythmical relationship of form to form.

General drawing

Preparation for drawing

Drawing is, at its simplest, the making of marks on a surface. Therefore any tool which will mark and any surface which will receive marks, is suitable for use.

The various media available are consequently too numerous to list in detail, but there are some which, because of their availability, lend themselves more readily than others. If my first premise is true then drawing and painting become inseparable. There is little doubt that in referring to drawing, or in producing a book on drawing, we are thinking of some limitation of medium and usually a restriction of colour range. Most of the drawings and diagrams in this book will have been made on paper with instruments traditionally used for such work—pencil, chalk, pen and ink, etc. The paper may be white or coloured, the chalks and inks black or coloured.

The medium will probably be important to the individual artist. One may use black or red crayon while another may prefer pen and ink. Whatever your choice of medium you may well be fastidious in your choice of materials. It would be

wise always to have a choice of media to hand, but I think it would be a wrong attitude to decide beforehand which medium to use. On a particular occasion the figure may seem to call for interpretation in a linear way and therefore a pencil or pen line may seem to offer the best means of expression. On the other hand, if the figure and its surroundings create an exciting pattern of dark and light areas, then perhaps charcoal or brush and washes may seem more suitable. Such a decision is better made when you have seen the model's setting. On pages 38–9 you will find a collection of sketches in different media (figs. 36–40).

Transcending the question of media is the problem of expressing something of

the interest of the various forms of the body, its rhythms and integrations. The draughtsman's method of approach is also very important. A brief note with a stubby pencil on the back of an envelope may, if taken at the right moment, have more vitality than the most elaborately wrought drawing done with the best quality materials. However, in setting out to pursue a serious course of study in drawing the figure, it would be foolish not to have suitable materials, so these should not be completely neglected.

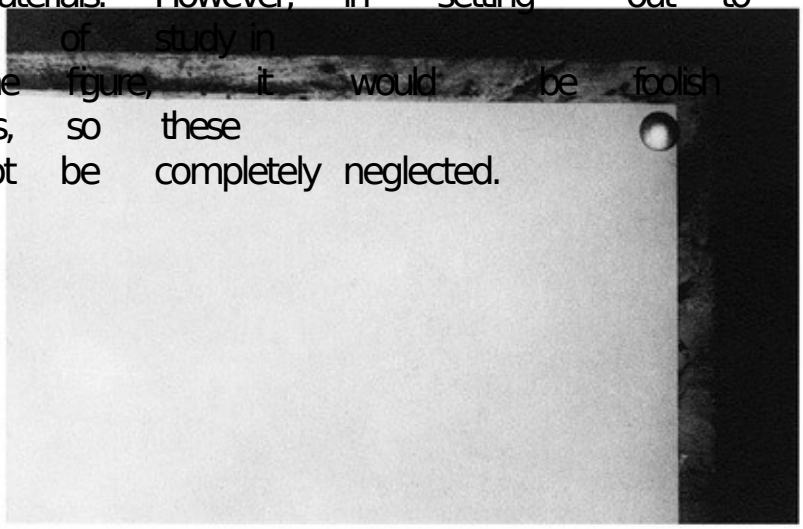


Fig. 1

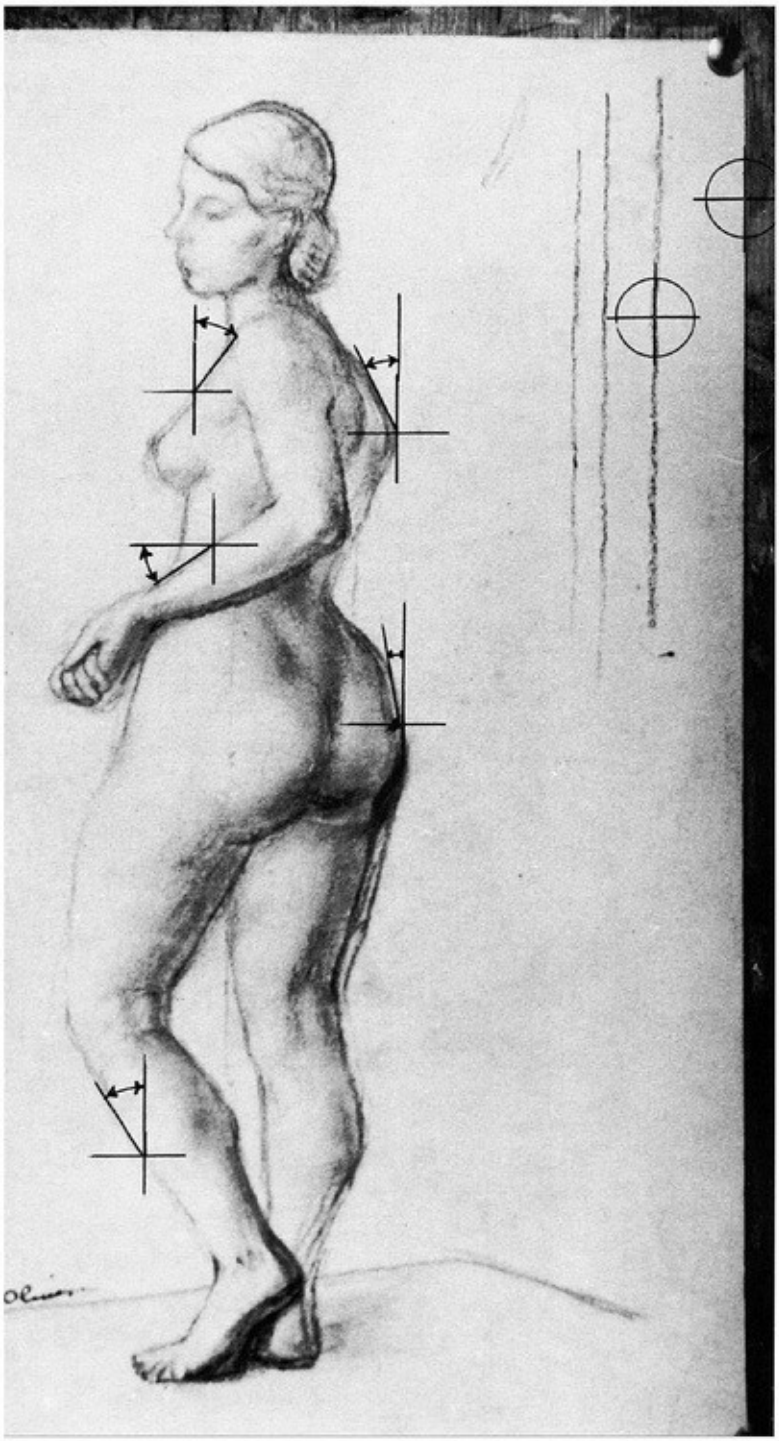
A very important item of equipment is the drawing board. For normal use this need not be more than half imperial size, 22 in. × 15 in. (56 cm. × 38 cm.). It should be light but rigid, and soft enough to take drawing pins easily, and its corners and edges should be absolutely true. Drawing paper should be placed precisely on the board so that its edges and those of the board are exactly parallel, and then pinned or clipped firmly. If for any reason the paper or board is

not truly rectangular, the right-handed draughtsman should try to arrange for the right-hand edge of paper and board to be parallel. The reason for this is quite simple. In drawing you must be constantly estimating the angles of direction of contours, and the vertical edge of the paper or board is a valuable constant or datum. If the edges of paper and board are both parallel then all is well, but if not, which one is to be regarded as the datum—paper or board?

All directions have to be estimated in relation to others. It is an axiom of

geometry that 'things equal to the same thing are equal to one another'. This might be developed to read 'directions related to one constant direction (horizontal or vertical) must be related to each other'. You must therefore, at all times, be acutely aware of a sense of the horizontal and vertical, as if you had a ⊕ engraved on your eye (fig. 2).

Fig. 2 On a number of the sloping contours I have marked a cross of vertical and horizontal axes to suggest the constant awareness of the direction of lines, rather like the hair lines in some viewfinders.



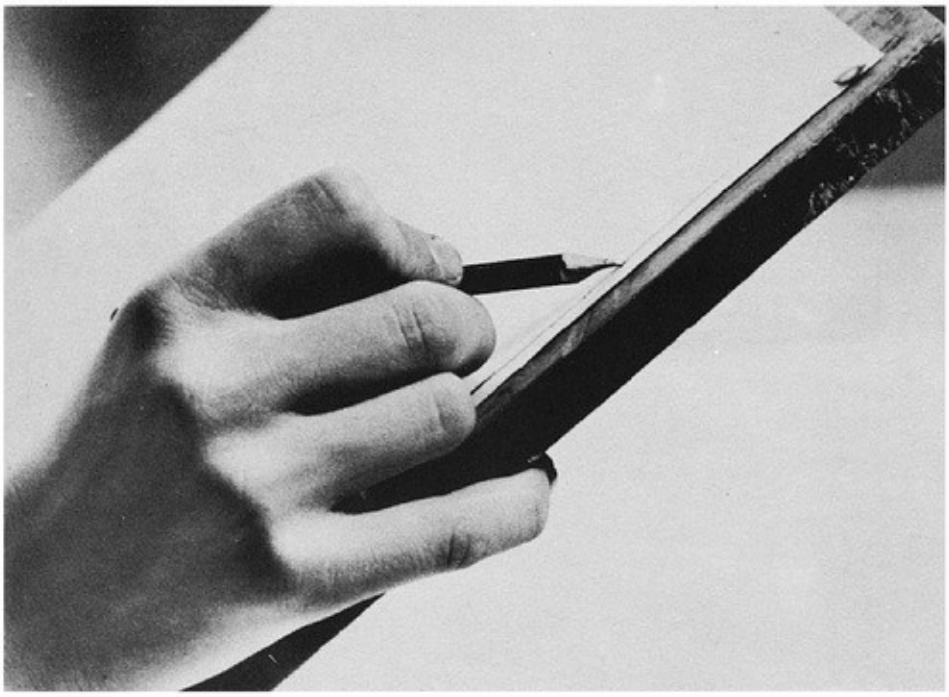


Fig. 3

One purely practical consideration may be worth mentioning here. An easy way of drawing a straight, freehand, vertical line is by hooking the little finger over the edge of the board (fig. 3). The hand can move freely up and down the board to draw vertical lines or to check for vertical relationships. If the paper is pinned askew, or much worse, not pinned at all, such verticals are useless. I make no apology for labouring this point, because I believe that the accurate transcription of directions is fundamental to good drawing.

When drawing from the model, some people may prefer to stand at an easel, others may prefer to sit. This is a personal matter. Large drawings may need to be done standing at an easel so that you can step back a pace or two, from time to time, to estimate the relationship between one part and another. Smaller

drawings—up to half imperial size—can be comfortably managed sitting down.

Try to sit so that the drawing board and the model can be seen with equal ease. I prefer to hold the board almost vertical on my knees. When drawing with a pen and wash the board must be in a nearly horizontal position so that a, the ink can run down to the tip of the nib and b, the wash does not run too quickly down the paper. It is almost impossible to do a pen and wash drawing at an easel.

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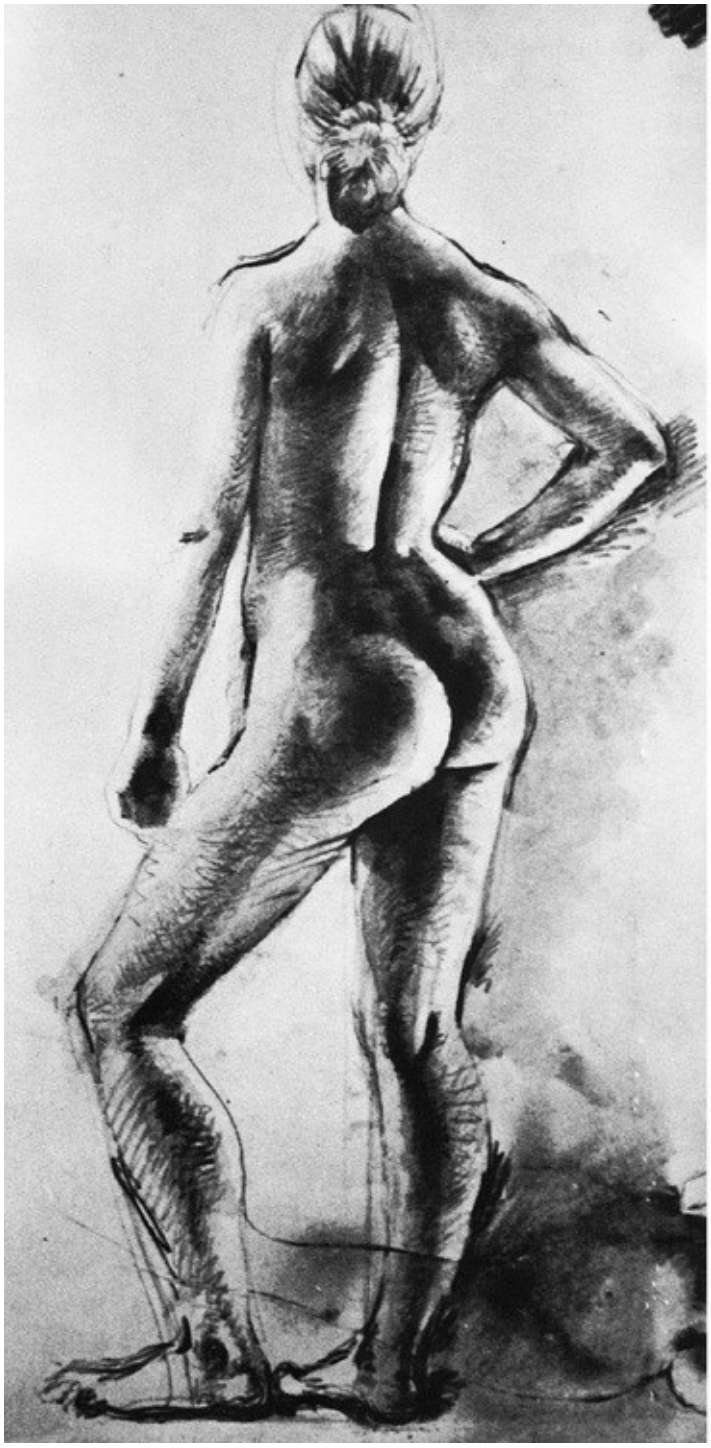


Fig. 5 Pencil and wash drawing—no lines rubbed out.

Whether standing or sitting, make sure that the board is adequately lit. If board and model can be seen with equal ease it will be relatively easy to keep

both under constant observation with minimum movement of eyes and head.

One reason for this is that in transferring impressions from model to paper the time-lag should be as short as possible. The eyes should be on the model as much as on the drawing. I have often watched students at work, engrossed in drawing in (and rubbing out) with only an occasional glance at the model. In contrast to this, I recall an occasion when I was drawing in the life class at the Royal College of Art when the (then) Principal, Sir William Rothenstein, came to my easel and began to draw, exclaiming 'Watch my eyes, watch my eyes'. Although this was rather comic at the time, I realized that he was the whole time observing the model, with only occasional glances at the paper.

Avoid the bad habit of rubbing out every few seconds. Nothing is more conducive to feeble, indecisive drawing. There are occasions when it may be necessary to erase a detail, but in general it is a time-wasting process. Drawings made direct from the figure do not depend on neatness nor even on absolute correctness of line for their quality. If you draw a line in the wrong place, or the model should move, necessitating alteration of any lines, carry on with the drawing by making the necessary correction. If later the false lines really interfere with the clarity of the drawing, then perhaps an eraser may be used. An examination of the drawing in fig. 5 will show that various attempts at the line were made before the artist was satisfied.

It is sometimes possible to begin with very delicate lines, strengthening these in the process of developing the drawing. In drawing with ink it is, of course,

impossible to draw pale lines and impossible to rub out. In such circumstances tentative lines may be drawn as thinly as possible, or even fine dotted lines may be used. Consideration should be given as to where a line is going to start and finish before embarking on it. Do not, under any circumstances, go over the outlines a second time merely to make them clearer or more precise. In drawing with a pen, explore the lines from the outset with the pen. Never draw in the outline with pencil first and then trace over with pen.

When figure drawing is practised as an end in itself it is, I think, true to say that to travel is better than to arrive. Most of our figure drawings, when completed, have little values as pictures. It is in the doing of them that the interest lies. For this reason I care not whether your drawings are done on fine quality Ingres paper or on cheap sugar paper, nor will they be better for being done in red crayon than in ordinary HB pencil.

Try to have a purpose when starting to draw. Examine the situation carefully. Study the model, the surroundings, the lighting. If there is room, move round the

figure to find the best angle. When drawing in a life class it often happens that either the model or the pose may not be particularly exciting, but usually some feature is worthy of attention—perhaps the way the neck sits on the shoulders, or the stress in a leg, or even the ground plan of the feet and any supporting furniture. If you are absolutely convinced that there is nothing there of any interest, then it is better not to draw the figure at all. Draw your colleagues in the class, draw the furniture, draw any cast from the antique that may be available. But do not do a bored drawing. Draw well if you can, badly if you must—but don't be bored or boring.

Elementary principles

There was a time when beginners were not allowed to draw from life until they had satisfied their tutors that they had done sufficient anatomical study and drawing from casts of the antique sculptures and had thus acquired reasonable facility in drawing; nor were they allowed to paint until they had a substantial groundwork in drawing. Nowadays the casts have been swept away, anatomy and perspective are often taught only superficially, and the trend has been away from meticulous representation of the figure. Much of the drudgery and tedium has gone from preliminary study, but nevertheless, if you wish to attain proficiency in figure drawing, some foundation work is necessary. While figure drawing is wonderfully fascinating it is also very difficult and can be frustrating to the beginner; there is much to be said for serving an apprenticeship in drawing inanimate objects and learning some elements of draughtsmanship in general and figure drawing in particular.

One of the essential requirements is a keen, observant eye. Drawing is essentially the making of lines and shapes on a surface. If the drawing is to have any meaning for an observer, that is, if it is to communicate an idea to another person, then the lines and shapes must create a pattern which he will recognize and be an accurate expression of what the draughtsman wishes to communicate.

In representational drawing it is necessary to acquire the technique of accurate representation in the same way that an executant musician must acquire complete mastery of his instrument in order to convey a convincing presentation of a composer's idea. This can most easily be demonstrated by one or two simple experiments. Think for a moment of a horizontal straight line. Then try, in a drawing, to communicate the idea. The result would be thus:

Fig. 6

The only characteristic possessed by this straight line is direction. This line goes from east to west (or vice versa) but there are hundreds of directions in which lines may go. So obviously in drawing of any sort it is of vital importance to determine precisely in which direction the lines shall move.

In drawing from the figure it will be necessary, firstly, to assess the direction in which various contours or relationships are moving, and secondly, to be able to reproduce these directions on paper or canvas.

Once a line is drawn, the next factor is its length. 'How long is a line?' sounds rather like 'How long is a piece of string?'. One line is any length, but two lines immediately create a relationship. So draw a line AB of any length in any direction.

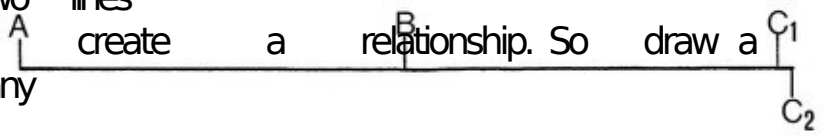


Fig. 7

Now extend it indefinitely through B. Mark off (by eye) point C so that BC = AB. Check the result with a ruler. How accurate were you? C1 was my estimate; C2 is the measured truth.

This then is a matter of proportion. In its simplest form drawing is a relationship of direction and proportion.

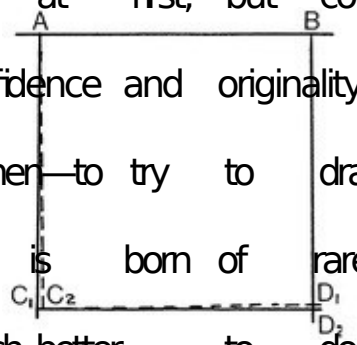
Now draw a square. How do you go about it? I did it this way—first of all the

line AB. Then, by eye, the verticals AC and BD. These must, of course, be really vertical, that is, at 90° to AB, not 80° nor 91° and must be exactly the same length as AB. Join CD. C1D1 was my estimate, C2D2 the measured truth. Not quite so easy as you might imagine, but this sort of estimation of directions and proportions must occur in every drawing. In the figure it is much more difficult and has to be repeated many times.

One way of assessing directions and proportions is by triangulation. The simplest demonstration of this occurs in the copying of a triangle ABC (fig. 9)

not necessarily to the same size. Try this exercise and analyse your method. For instance you might start at A1 and draw A1x any length. Then draw A1y any length, taking care that the enclosed angle is exactly that of the original. Mark off point C1 any distance from A1. Point B1 can now be determined by drawing C1z at exactly the same angle as that in the original triangle. Where line A1x and C1z intersect is the only possible position for B1.

In progressing from point to point in a survey of the figure it is unwise and unnecessary to guess (fig. 10). Every shape should be accurately assessed. This is sometimes tedious at first, but constant practice produces familiarity and familiarity produces confidence and originality. It is useless to imitate the style of the great draughtsmen—to try to draw with the fluency of a Raphael or Degas; such drawing is born of rare talent, profound study and observation, and constant practice. Much better to do a less spectacular study, but one which represents first-hand observation.



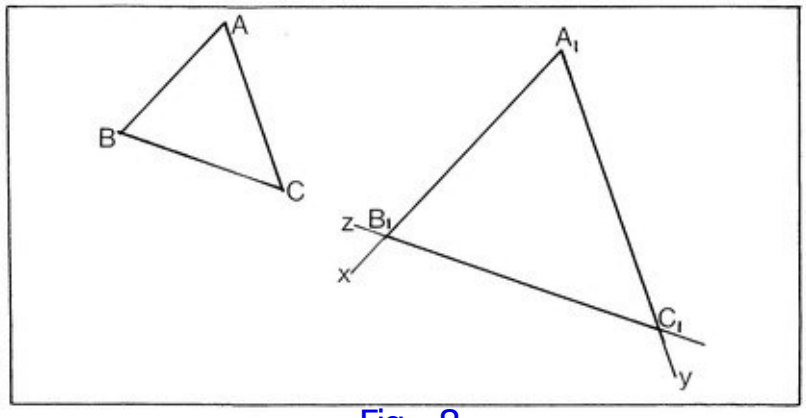
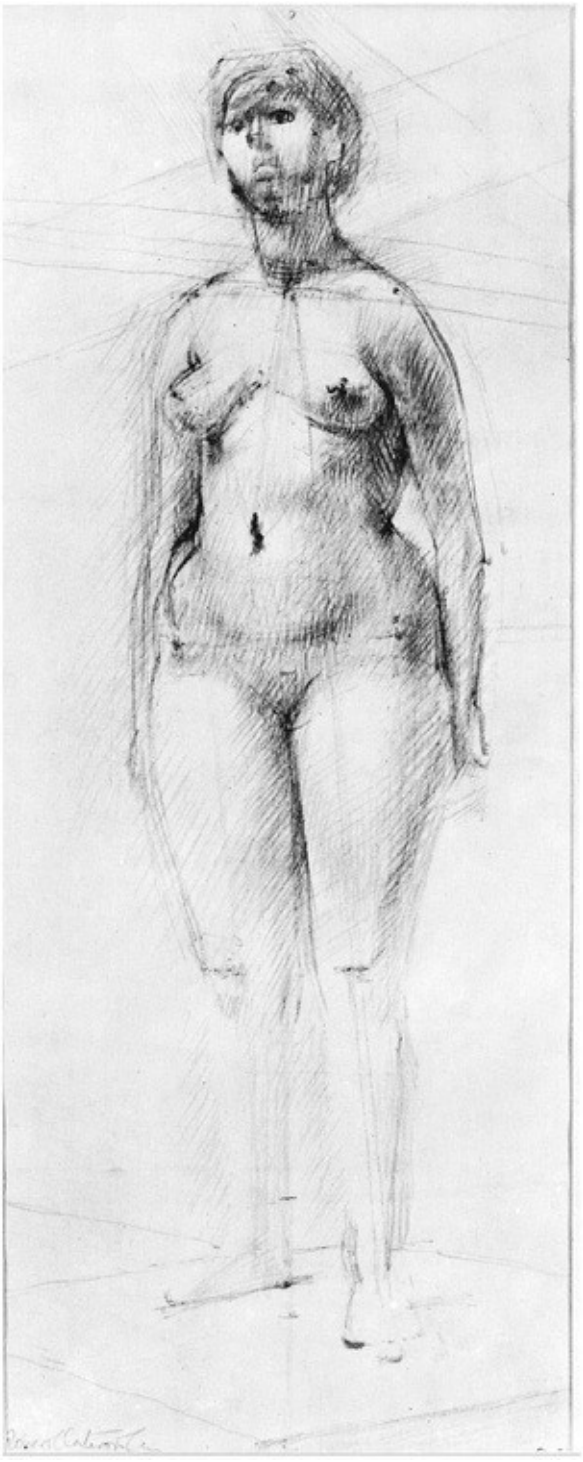


Fig. 8

Fig. 9

Fig. 10 Figure drawing by Robert Clatworthy; Victoria and Albert Museum, London. Triangulation used here. The construction lines have not been rubbed out and it can be seen that the artist has searched constantly for the relationship of one point to another.



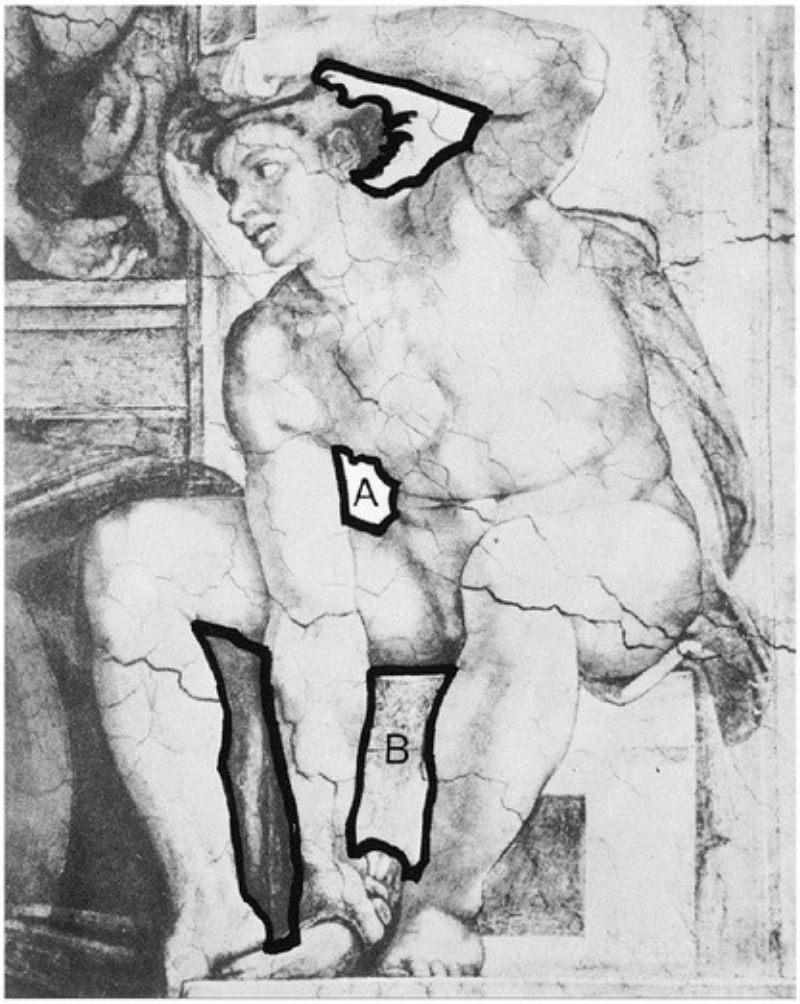


Fig. 11

In drawing the square (fig. 8) or triangle (fig. 9) it is obvious that the lines drawn create a shape. These shapes are more important that the lines that make them. Apart from shapes made by various parts of the figure there are also shapes contained between background and figure which, if accurately observed, help to control the proportions. A good example of this is seen in the study of an athlete by Michelangelo (fig. 11) where the figure has been deliberately faded out and the lines around shapes such as A and B reinforced in indian ink to stress the point. The tiny shape A is made up from the arm, chest, ribs, pelvis and

thigh. If in this pose the shape were made too large or too small or otherwise wrong, then the whole drawing would be affected. One of the most common faults made by beginners in drawing and painting, is failure to observe the

relationship between the figure and its surroundings.

Form in drawing is usually understood to mean the three-dimensional shape of an object. A square has only shape, but a cube has form. While many artists have striven to suggest this three-dimensional quality in their works this is not by any means essential and there are numerous examples, from the figures on Greek vases to artists like Matisse, Beardsley and Modigliani, which prove that other qualities are equally acceptable, especially where decoration is concerned. It might even be argued that it is no business of the artist to try to create the illusion of three dimensions on a two-dimensional plane. Drawings have, from early times, also been made as preparatory studies for paintings and sculptures where some indication of volume was necessary. Such preliminary drawings in the hands of great masters like Raphael, Rubens and others have always been highly prized because of their directness and boldness and in fact, lead us directly into the artist's mind. It is this type of drawing that I always have in mind; drawing in which one is seeking after the formal qualities of the figure to be drawn, and not merely its decorative shape. In the days when all painting and sculpture was figurative, such studies were a necessary preliminary for the artist. Nowadays the drawings often serve no purpose other than exercises in the observation, understanding and representation of the figure.

The human figure is a complex structure and to draw it satisfactorily it is necessary to understand how it is made, how it functions and how to represent it on canvas or paper. It is my belief that the problem is divided broadly into two

aspects—first, a general knowledge of drawing principles and second, a very specialized knowledge of the figure itself.

The representation of forms on a flat surface to produce a sense of volume relies on perspective, and light and shadows. I would now like to examine the nature of the usefulness of both these elements.

It is quite possible to suggest three-dimensional volumes in drawing by the use of line only, as in fig. 12 a, b and c, but there are instances where line alone is quite inadequate. No amount of skill can make the circle, d, fully explicit. Is it a wire ring, a flat disc or a ball? If the drawing is reinforced by indicating the effect of light on the surroundings, then its identity may be explained as in fig. 13.

Fig. 12

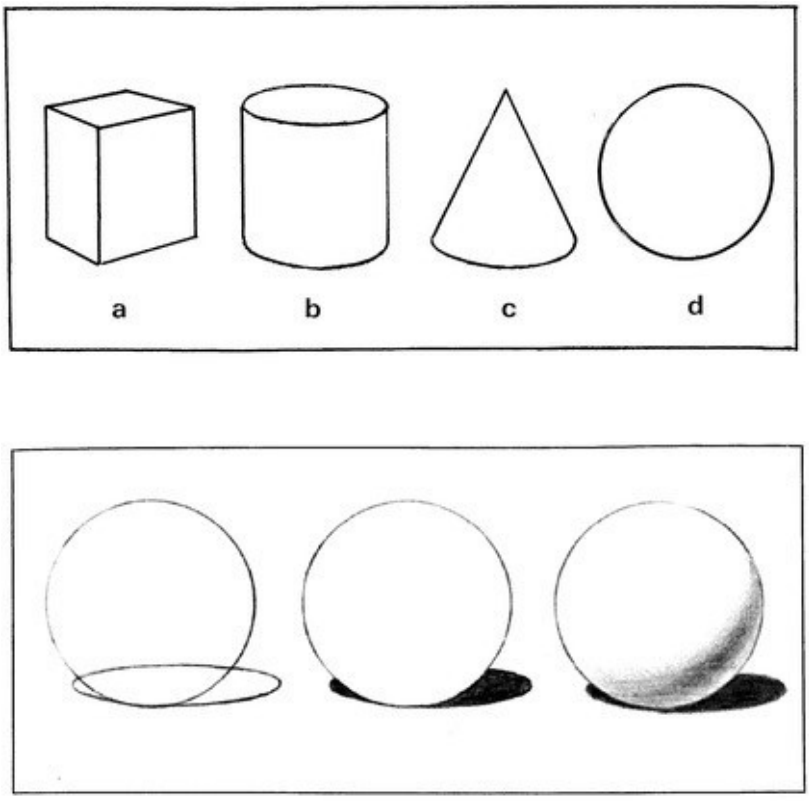


Fig. 13

Perspective may be as important to the figure draughtsman as anatomy, perhaps more so, but as in the case of anatomy, it may not be necessary to make a profound study of it. There are, for the enthusiast, many manuals of instruction containing exercises (from very elementary to extremely advanced) in the rendering of forms in true perspective, the projection of shadows (sun or artificial light) and reflections. Perspective is an extremely fascinating study for anyone interested in geometry and the use of geometrical instruments. The early Renaissance artists were as interested in it as they were in anatomy and by the time of Leonardo, Michelangelo and Raphael, they had evolved a complete scientific method. The later Mannerists and Baroque painters wrought incredible

feats of trompe l'oeil, making the walls and ceilings of their buildings appear to soar upwards to great heights, topped by hosts of angels in the blue heavens.

For our purpose here, a more superficial study of perspective may suffice — what the figure draughtsman needs is a profound appreciation of the elements of perspective rather than extensive knowledge of all its ramifications; to be able to draw from memory, first, simple forms like cubes and cylinders and, eventually,

figures tilted in almost any position. Many people have an intuitive feeling for perspective even without academic knowledge. Early Flemish painters, notably Van Eyck, had this sense and a wonderfully observant eye. It not infrequently happens that young students enter the life class and almost immediately show a capacity for expressing the volume of the figure. Where there is such inborn skill, theoretical principles of construction can do little more than fill out the natural talent. If you can see clearly that all the receding lines of a room appear to vanish to a point, then the theory is not likely to help you very much; but I am certain that for those of us who are less gifted, the acquisition of knowledge can be a tremendous help.

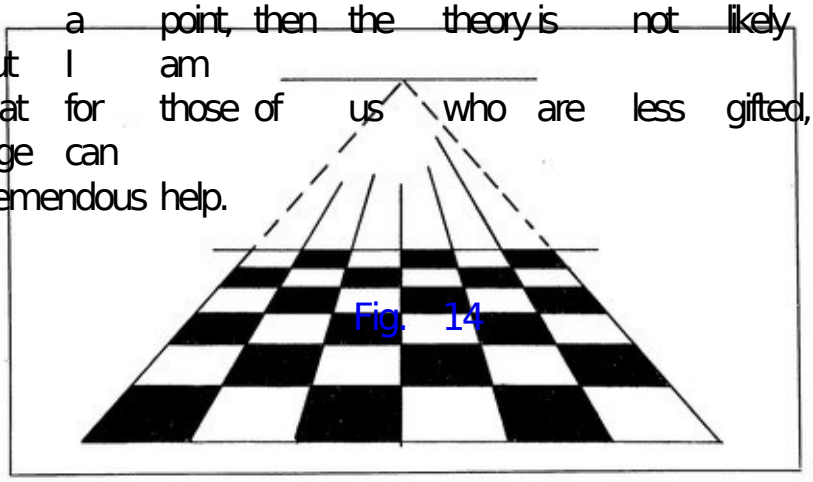


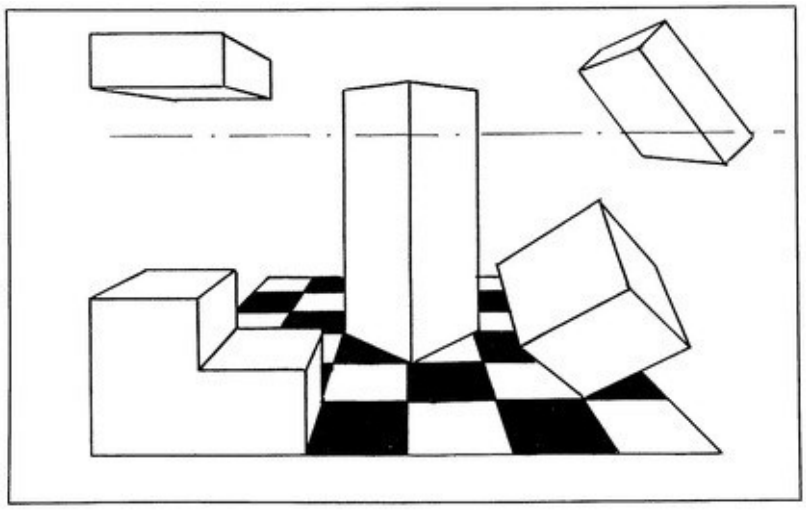
Fig. 14

The study of perspective, like geometry, depends on following a course of graduated exercises and cannot possibly be developed in this small book. I must therefore assume that you have some knowledge of the principles of perspective

—that you are familiar with the optical theory of parallel lines appearing to recede towards a 'vanishing point' and with eye levels, horizon lines, etc. You should be able to represent, without difficulty, a tiled floor in perspective (fig. 14) and to place on or above it cubes or other forms in various positions (fig. 15).

Such exercises are not wasted for the potential draughtsman. I hope to show that all the forms in the figure, as in nature generally, have their counterpart in very simple geometric constructions. Constant reference will be made to three basic forms, the cube, the cylinder and the sphere.

Fig. 15



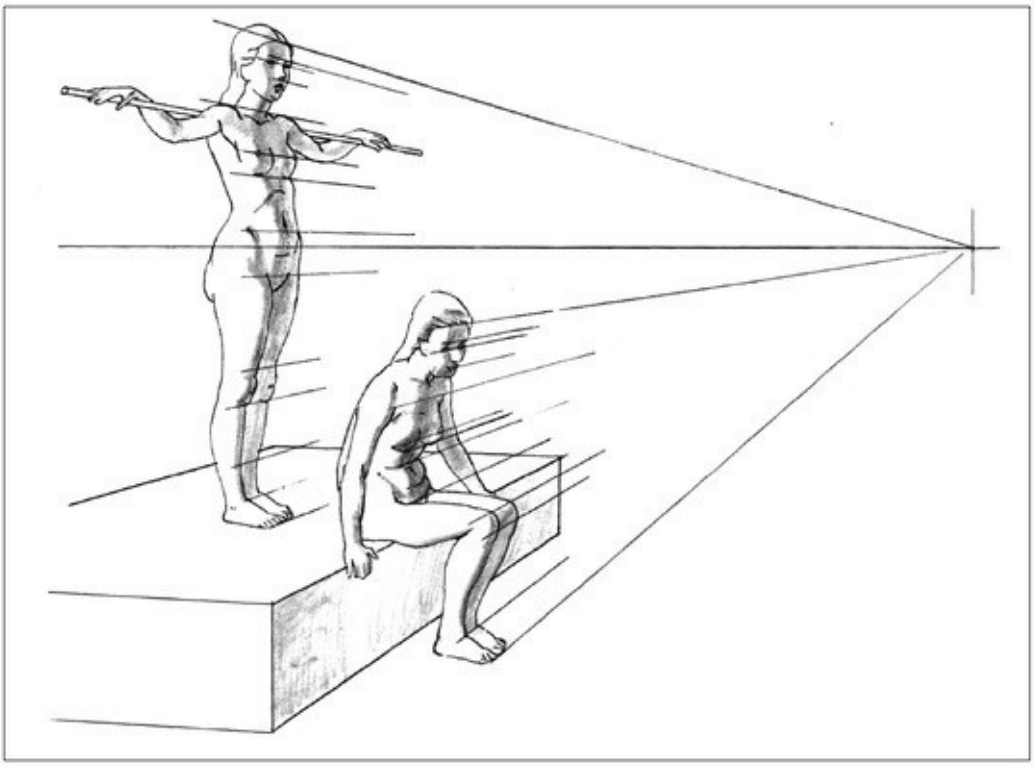


Fig. 16

Every artist and student of art will be aware of Cezanne's dictum, 'Everything

in nature is modelled on the sphere, the cone and the cylinder. You have to learn to paint on simple figures, you can then do anything you want' (Tout dans la nature se modèle selon la sphère, le cône et le cylindre. Il faut s'apprendre à peindre sur les figures simples, on pourra ensuite faire tout ce qu'on voudra.) It may seem presumptuous to disagree with this great master but I must confess that I have never been able to reconcile myself to the selection of the cone as a basic form; on the other hand the cube seems to me to be so important that no collection of forms can be regarded as complete without it.

The cube and cubic forms are composed of flat planes meeting at sharp corners; the sphere and other round forms are composed of a continuous curved surface; the cylinder is, to some extent, an amalgamation of these two types of form showing a cubic silhouette from one aspect (elevation) and a circular silhouette from another (plan). It seems to me that a cone is merely a cylinder with tapering sides. Again and again in drawing the figure one thinks in terms of the cube, the cylinder and the sphere (fig. 25) and in the course of my teaching I have drawn the attention of students to them many times.

The draughtsman of the human figure is directly concerned with the observation of perspective principles and fig. 16 shows a simple application of perspective law to two figures posing at different levels. The figures are deliberately placed in static symmetrical poses and I think it should be evident that lines through eyes, shoulders, breasts, hips, knees etc., recede to a vanishing point as certainly as do the lines of the platform. It must be stressed, however,

that the figure is not an inanimate piece of furniture and quite often one part of it may be twisted at an angle from another part, making the perspective more complex and more difficult to detect.

A very important part of perspective, the suggestion of recession, lies in the use of overlapping lines. Consider the two flat tiles a and b in fig. 17. The outline is exactly the same in sketches (i) and (ii), it is merely the difference of overlap that changes the apparent positions of the tiles so that in (i) a overlaps b, while in (ii) b overlaps a. Again, in fig. 18 the outline of the two cubes is almost exactly the same, yet variation of the internal lines produces an impression of different view-points.

Fig. 17

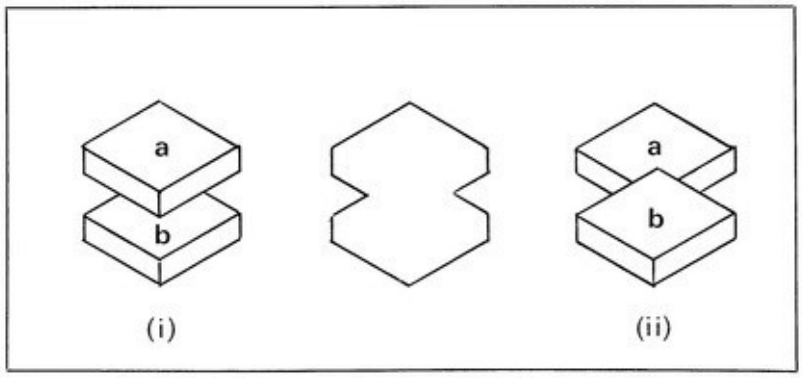
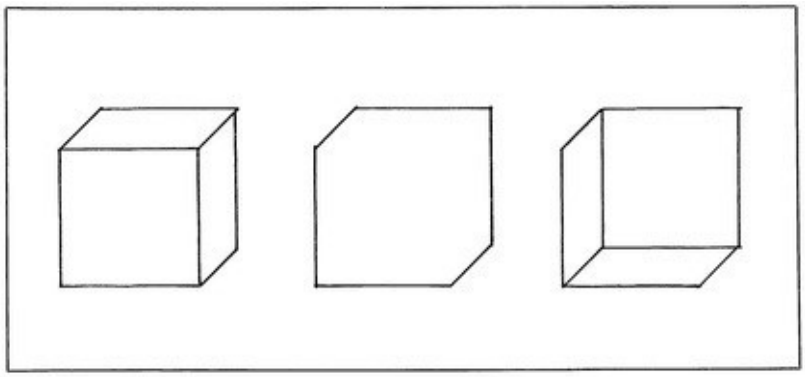


Fig. 18



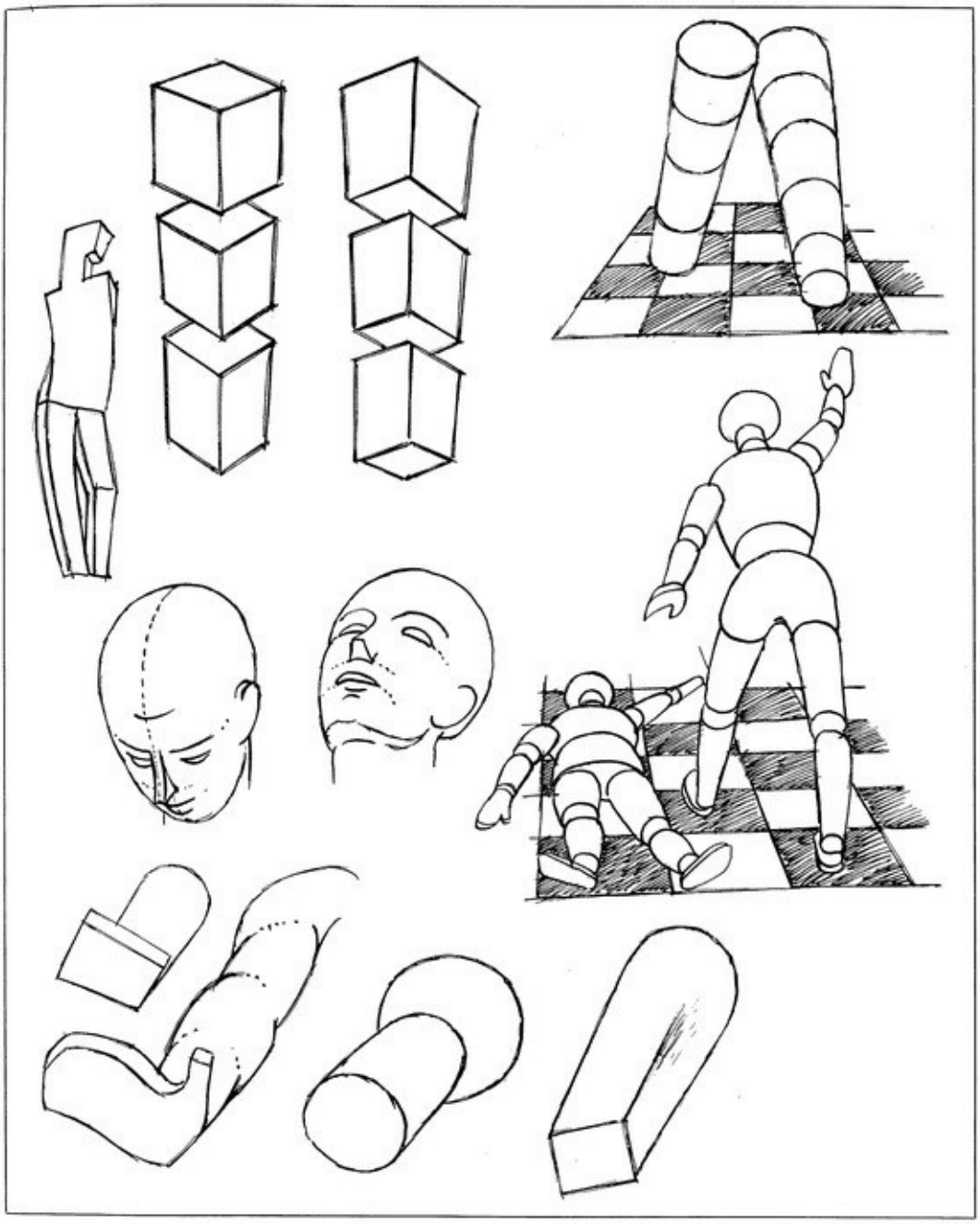


Fig. 19

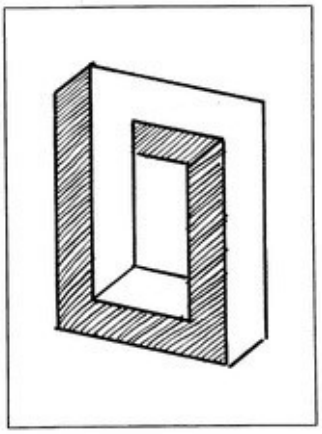


Fig. 20

Fig. 19 is a sheet of 'doodles' of various applications of overlapping lines to represent relationships of forms. Such sketches are quite interesting to do at odd moments—they are unambitious and make little pretence at refinement, but they exercise the mind in the direction of formal constructions.

All drawings must be backed by understanding, otherwise they can be nonsensical. In fig. 20 I have devised a 'nonsense' drawing, in that it is not a logical construction. Lines wrongly interpreted can easily make a drawing incoherent.

The figure, a very complex structure, contains in its contours numerous examples of overlapping lines, and the most careful attention should be paid to them. In fig. 21 I have indicated the importance of such overlapping lines by continuing them in dotted form over the surface of the figure.

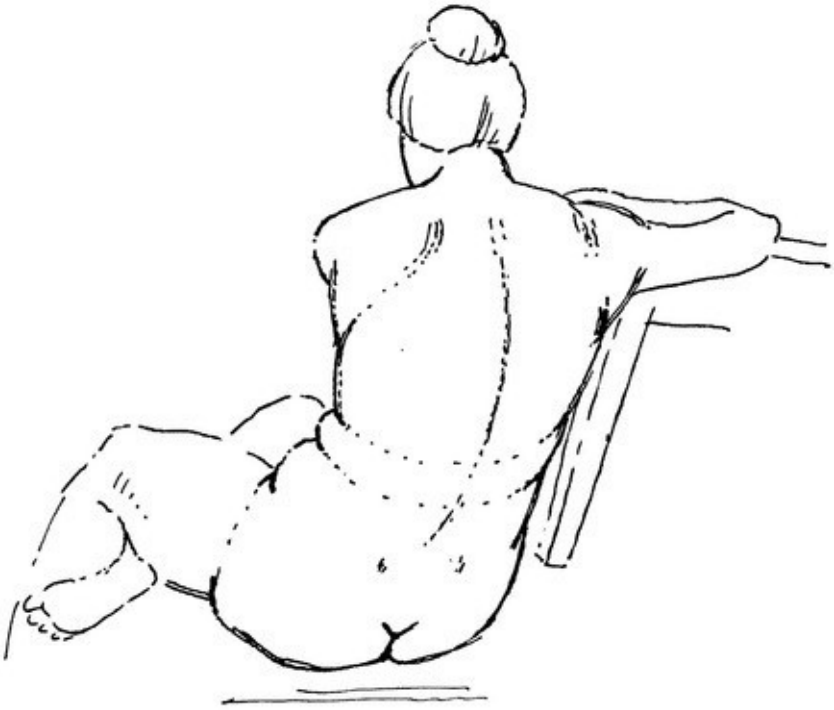


Fig. 21

Fig. 22

In fig. 22 where shading has been used the shadow edges have been observed to overlap and 'point' towards breaks in the contours, thus making the artificial dotted line unnecessary. If one contour, in overlapping another, makes a 'lead' in a particular direction, the eye will tend to follow that direction over a reasonable distance or until diverted by another incident.

A dotted line is simply a series of dots so placed that the eye is obliged to bridge the gaps in between them (fig. 23).

In drawing the figure, the overlapping of contours is not always strikingly evident in the silhouette; that is, the insertion of one line into another must not be

allowed to break the continuity of the contour and make an obvious bulge. In fig. 22 the overlaps on the left-hand side do bulge because the muscles are compressed there, but on the opposite side where the muscles are stretched, the

overlaps are much less deeply marked.

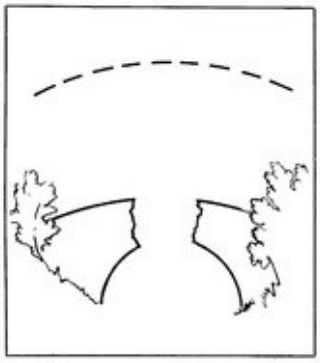


Fig. 23

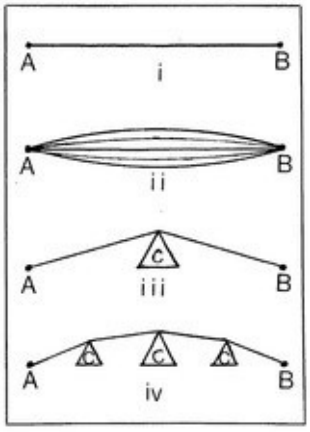


Fig. 24

There are far more straight lines in the contours of the figure, even in the most 'curvaceous' figure, than is commonly supposed, particularly where muscles are stretched or in tension. Muscles extend from one point to another, partly in fibrous form, partly as tendons. When they are in tension they try to follow the shortest route, which is a straight line, and are only diverted by their own bulk or by a bone or other protrusion. The principle can be demonstrated by stretching a

piece of string from A to B as in fig. 24 (i). If a considerable number of strings were stretched from A to B then something like fig. 24 (ii) might result, where some strings would be diverted by sheer numbers, only one being able to follow

a truly straight course. Each string would be trying to follow the shortest route and would therefore be stretched very taut. In fig. 24 (iii), AB is diverted by a protrusion C, and resolves into two movements AC and CB. When many protrusions occur—fig. 24 (iv)—the many short straight lines resolve into a taut curve. One of the values of anatomical study is in recognizing the significance of such tensions and diversions when they occur, and thus being able to put down lines which have as much meaning as possible.

Light and shadow

The perception of objects is entirely dependent on light. From a visual point of view if there is no light there is no object. There are of course, many reasons for doing figure drawings—some artists may be fascinated by the linear rhythm and not seek for internal modelling—others may be attracted by the interaction of the various parts of the figure. I have always been attracted by the play of light on forms or, to put it another way, by the reaction of forms to a source of light. I think, therefore, that a study of light on forms in general and on the figure in particular is justified. I have previously suggested that there is a close relationship between the cube, the cylinder and the sphere and the forms of the figure, and I will now examine these three basic forms, and their extensions and integrations, in relation to the source of light.

In fig. 25 I have made six drawings of simple forms with the light, indicated by arrows, falling diagonally from the left-hand side. The forms are assumed to be standing on a light-toned base. The main elements of light to which I wish to

draw attention are the light areas, the shadow areas, the reflected light areas, the cast shadows and the highlights.

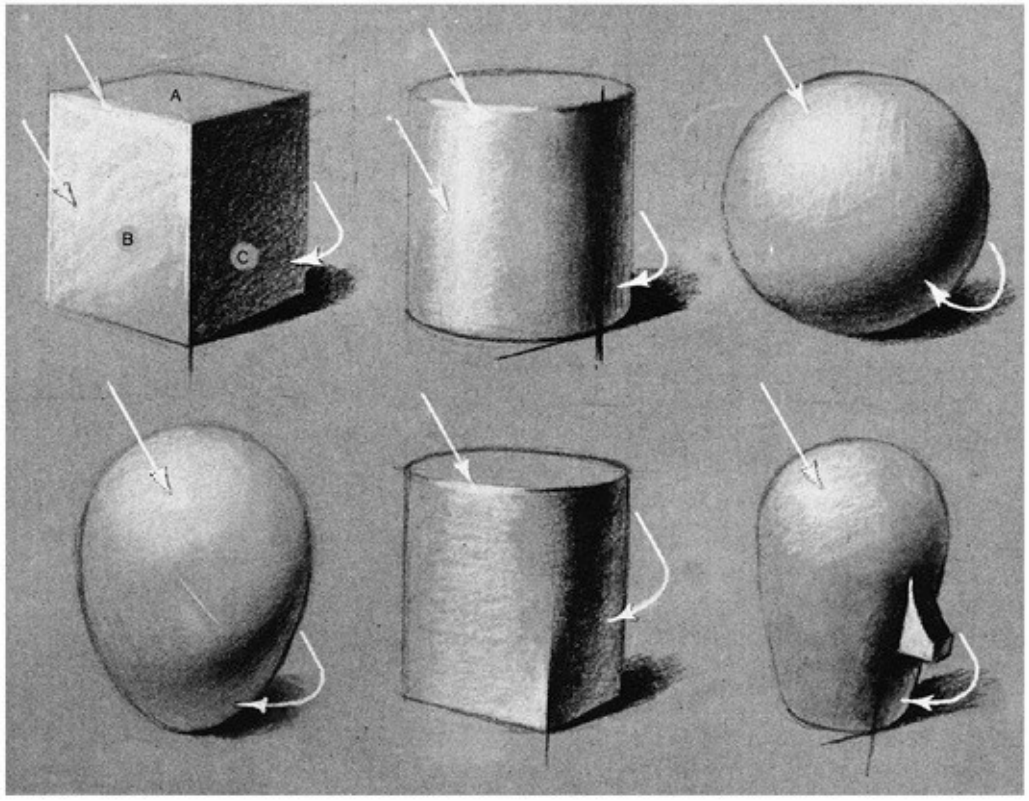
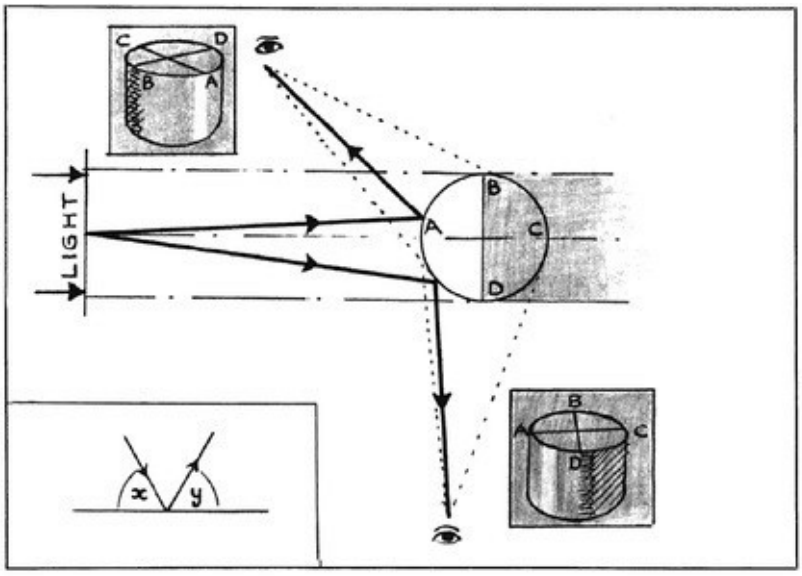


Fig. 25

In the first sketch, the cube, the light falls almost equally on planes A and B. If the light source were lower a greater difference would develop, with plane B becoming brighter. If the light source were higher, then plane A would become brighter. Plane C is assumed to be turned away from the light and is therefore in shadow. This does not mean that it can be blacked out and dismissed from attention. On the contrary, these shadow areas are frequently more interesting and exciting to draw and paint than the light areas. Turn through the pages of a book of paintings by Rembrandt and note how amazingly luminous and expressive he could make his shadows (see also fig. 32). In our cube, the shadow is most intense where it comes up against the light edges, and becomes lighter as

it moves away towards the back and base. The reason for this is twofold; first, the shadow edge may look darker by contrast against the brilliance of the light planes and second, as the plane recedes it picks up increasing light from the surroundings (base and walls of room).

Fig. 26



The cast shadow—that is, the shadow which the object throws over its surroundings—is fairly straightforward. In the present example the shadow is thrown across the base from the corner of the cube where light and shade meet. In the drawing of the cylinder (fig. 25) the cast shadow begins at a point tangential to the shadow, which I have marked for clarity. The cast shadow is often darker than the surface of the form casting it, thus helping the luminosity of the shadow area. A head will often cast shadow across the neck, an arm across the body.

If the cube in fig. 25 were shiny, then almost certainly the edge between planes A and B would be a highlight area. Highlights do not always figure in pure drawing, but may be significant in painting, particularly in the representation of differing surface qualities. Highlights are often misunderstood but they have a right place in representational drawing and I think an attempt to

explain why and where highlights occur is justified.

Imagine the plan of a studio in which two artists draw from a fairly shiny cylinder, with the window on the left, as shown in fig. 26. The position of the shadow area will be fixed across the axis BD dictated only by the relationship of the cylinder to the window. The artist may see more or less of this shaded area as he moves around the cylinder, but the position of the high light is not fixed and will, to some extent, move around with him. It demonstrates in fact, the law of

physics that the angle of incidence X is equal to the angle of reflection Y (inset).

There are two types of surface that will concentrate reflected light, the concave and the convex. Consider a corrugated form (fig. 27a) with the light falling from the upper left and viewed from the eye on left. Highlights would reflect from three points as shown, two from the concave surfaces and one from the convex. Similarly the highlights on a vase (fig. 27b) will reflect from predictable points on concave and convex surfaces. Both concave and convex surfaces occur on the human figure and where the skin is shiny, often reflect the light quite strongly. This is very often noticeable in painting dark-skinned people where the cold reflection of the (blue) sky contrasts excitingly with the warmth of the skin. In fig. 28 (after a head by Donatello) most of the detail has been suppressed in shadow to show how highlights can be used in the modelling of form.

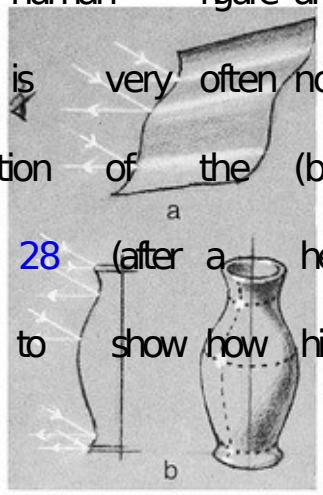


Fig. 27

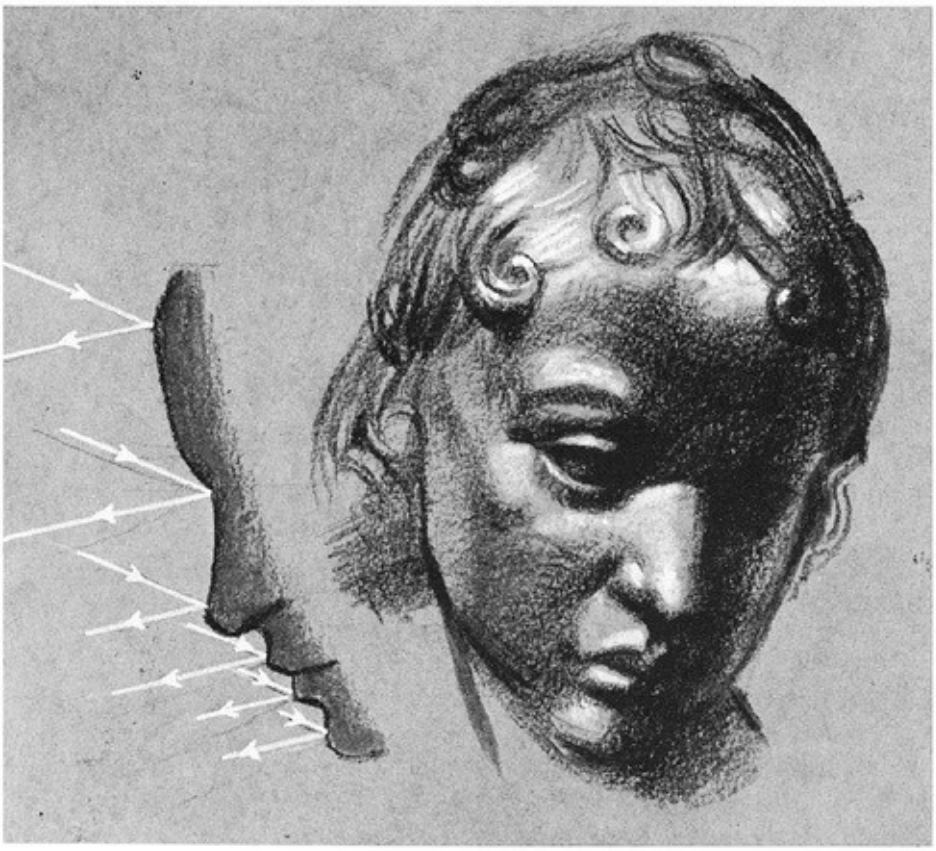


Fig. 28

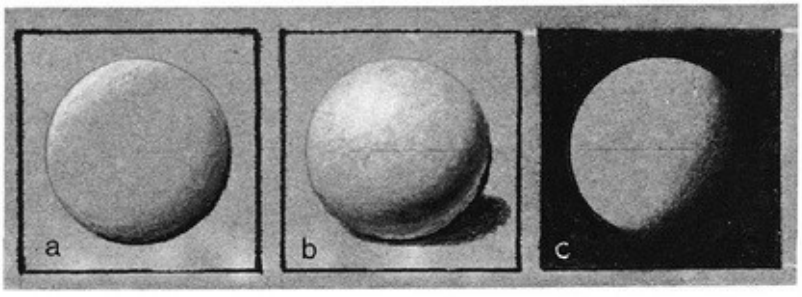
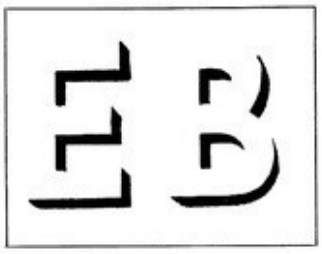


Fig. 29

Fig. 30



Look now at the other drawings in fig. 25. I have indicated here the various gradations of light as they occur on the cylinder and on the sphere. The reflected light in the shadow area on the cylinder and sphere is particularly important in expressing the full roundness of the surface. You will find this reflected light constantly alluded to, often in even the slightest of sketches. Furthermore, in a circular form (fig. 29) modelled in low relief (a) and a full sphere (b), the only way of establishing the difference is by due attention to this reflected light and, perhaps, to the cast shadow. It is, I think, true that the moon usually looks like a flat shape (c) not because it lacks a shadowed area, but because there are no surroundings to reflect back the sun's rays.

The three other forms demonstrated in fig. 25 should be self-explanatory. The egg form is perhaps one of the most beautiful and delicate forms in nature, maddeningly difficult to draw and paint. The lower cylinder I have resolved on to a cubic base and in the last sketch I have ~~added~~ a cubic form to a kind of ovoid, hinting at a rudimentary head.

Before leaving the question of light and shadow on these simpler forms, I would like to make one more point. Although the sketches do demonstrate light, shadow, reflected light, cast shadow and highlight, they are to some extent

conventionalized in that they are built on line drawings and in all of them no attempt has been made to conceal the original chalk outline. It is often contended, however, that in nature there are no lines and this is probably true. A rather crude example of this can be seen in letter forms (fig. 30) where only the shadowed plane is drawn and yet the letters are clearly identifiable and do not look incomplete.

A less extreme example of the 'disappearing' edge is demonstrated in fig. 31. Let us suppose that a light-toned sphere is placed in front of a slightly darker-toned background. In the sketch the light part of the sphere is shown lighter than the background, producing a clearly contrasting edge A (light against dark). The dark part is darker than the background producing edge B (dark against light). Since the edge of the sphere moves from light to dark it follows that somewhere

about C there must be a short length of edge which is neither lighter nor darker than the background and this will tend to disappear. This phenomenon is worthy of notice because it happens again and again in figure drawing. The drawing by Seurat (fig. 33) shows how the observation of the tonal relationships of the edges of the drawing can help to unify the whole drawing.

When making use of light and shadow in figure drawing or drawing of any sort, care must be taken not to fall into the error of merely copying lights and shadows. Fig. 34 will show what I mean. It will be seen that a line has been drawn down the vase to define the edge of the shadow, which eventually is worked on and softened, without any attempt being made to explain why the shadow edge is so shaped. Likewise in student drawings of the antique figures and from life, many hours and much skill were employed in reproducing in pencil or charcoal every nuance of shadow and light on the form 'because it was there' but not because it was strictly necessary—'finish' was highly valued.

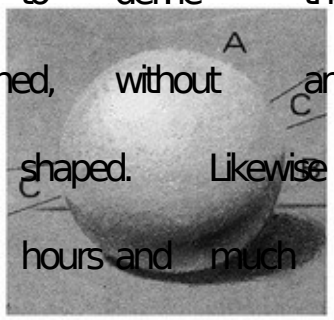


Fig. 31

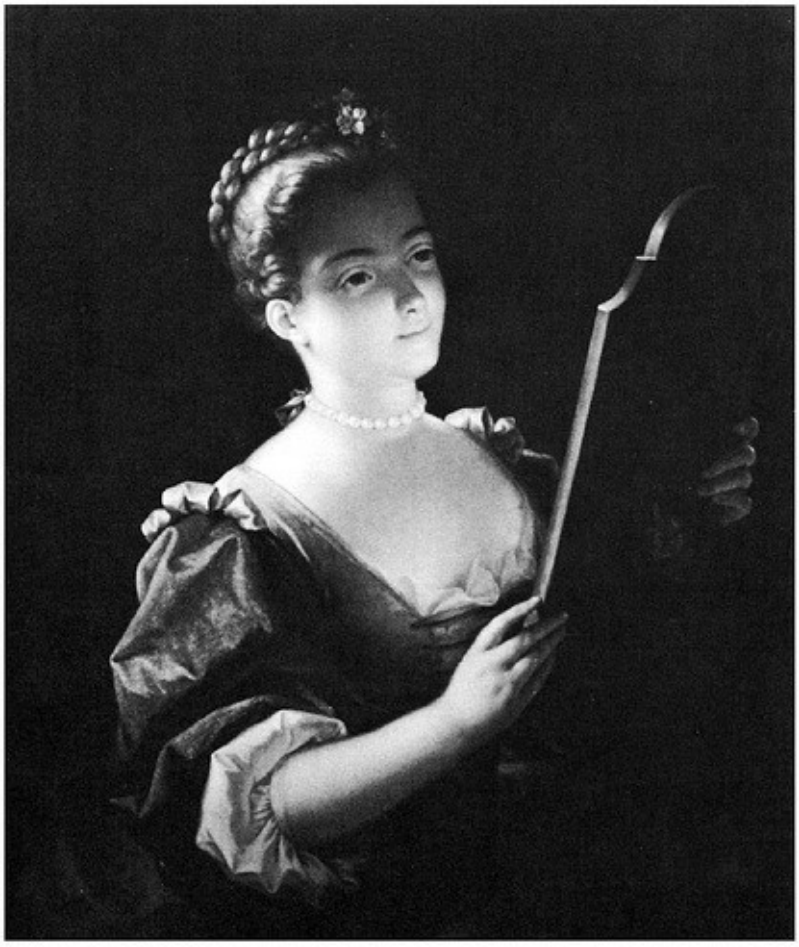
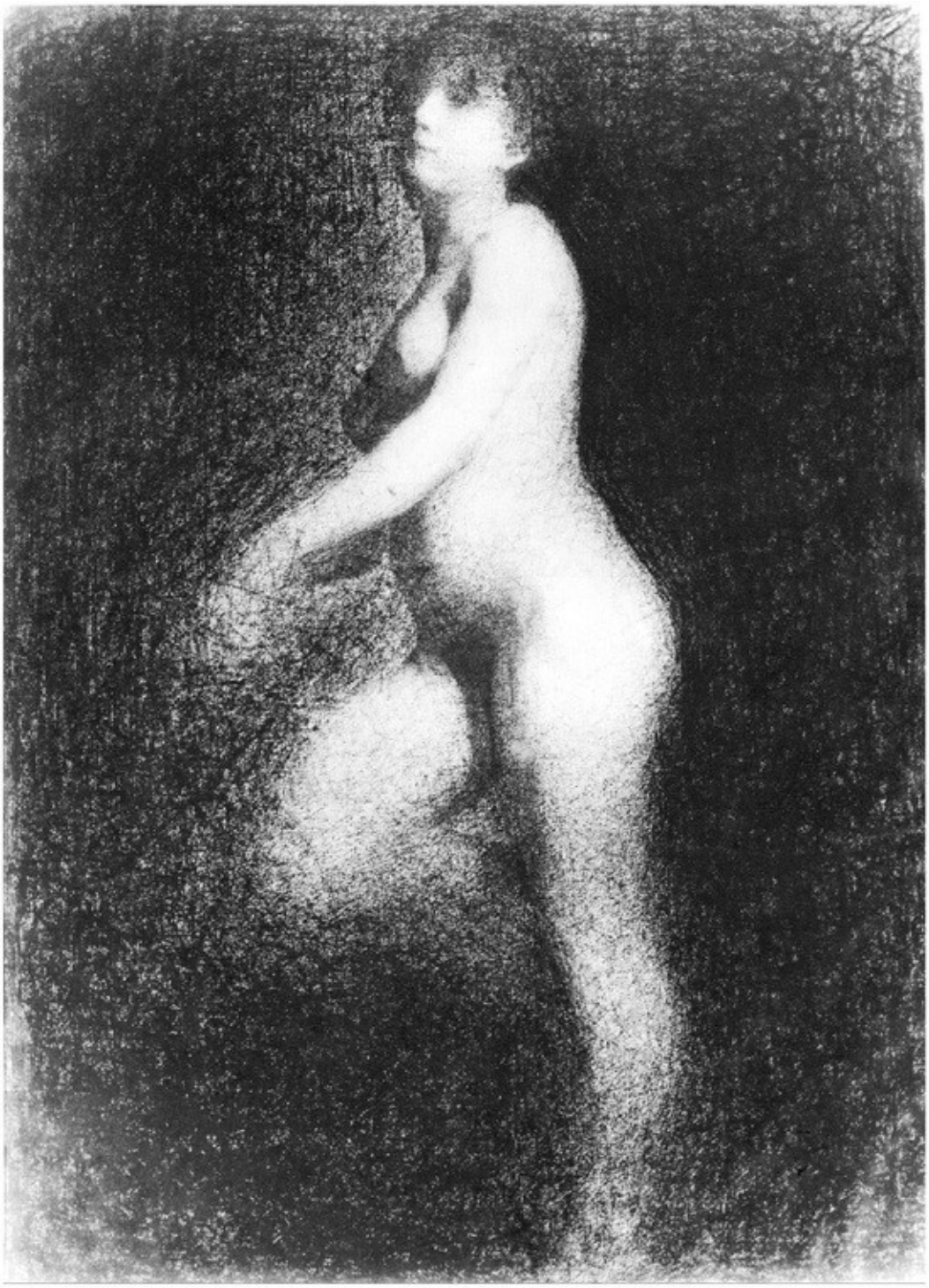


Fig. 32 A Lady at her Mirror by Jean Raoux; Wallace Collection, London.

Although executed with typical eighteenth-century rococo charm, this painting represents a serious study of two sources of light on the figure, direct light from the left, reflected light from the mirror on the right.

Fig. 33 Nude Study by Georges Seurat; Courtauld Institute, London.



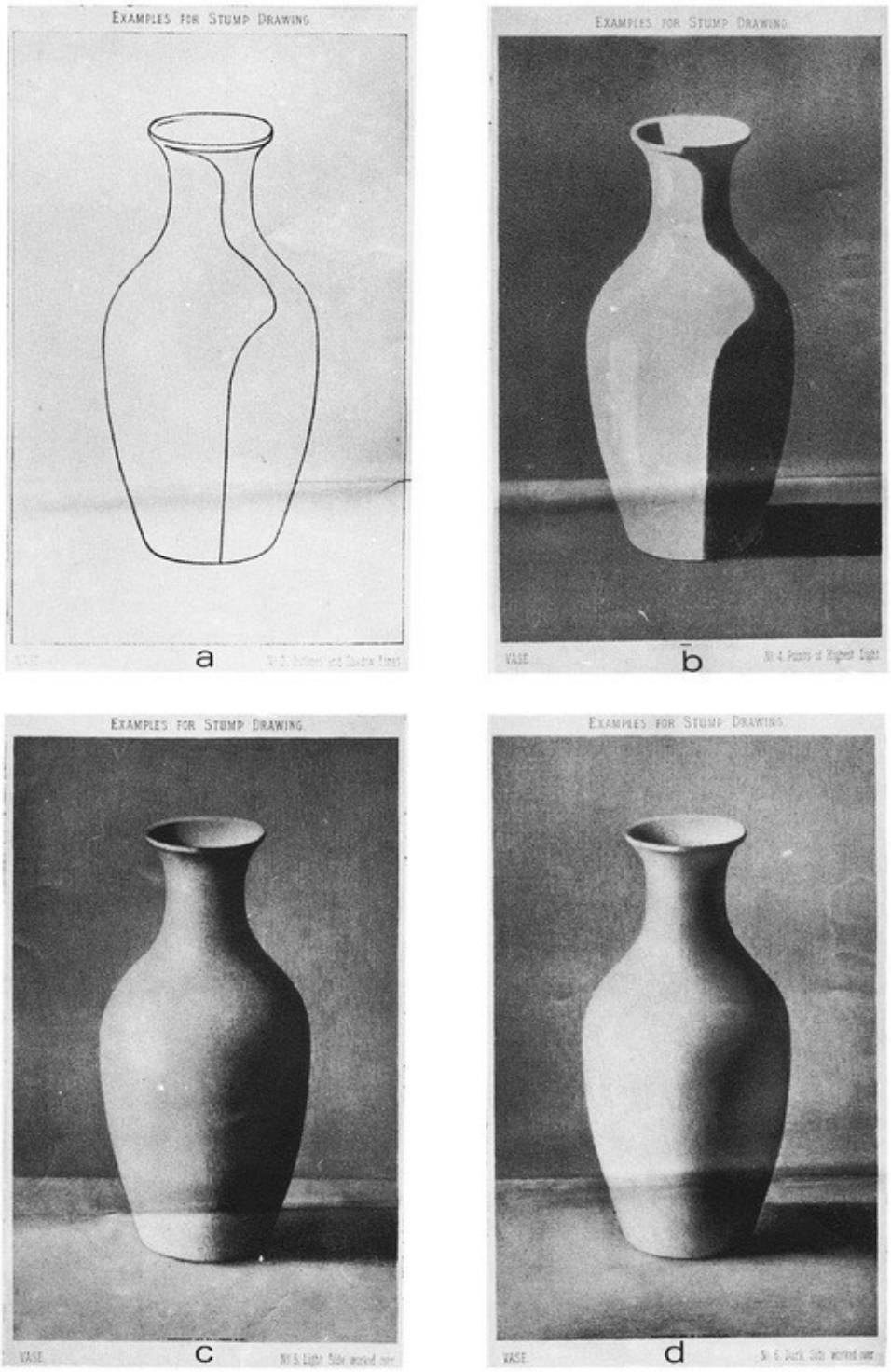


Fig. 34 These four sheets of drawings were actually made and printed in 1880 for use in Schools of Art. Students spent many hours copying them with stump and charcoal before going on to draw from a real vase or cast, and eventually

from the figure. I believe such drawing was unintelligent.

a After carefully balancing the contours, a 'wiry' line has been drawn down the surface to indicate the contour of the shadow.

b At this stage, shadow areas have been blocked in and high-lights cleaned out, but without any attempt to understand why the shadow edge is so shaped.

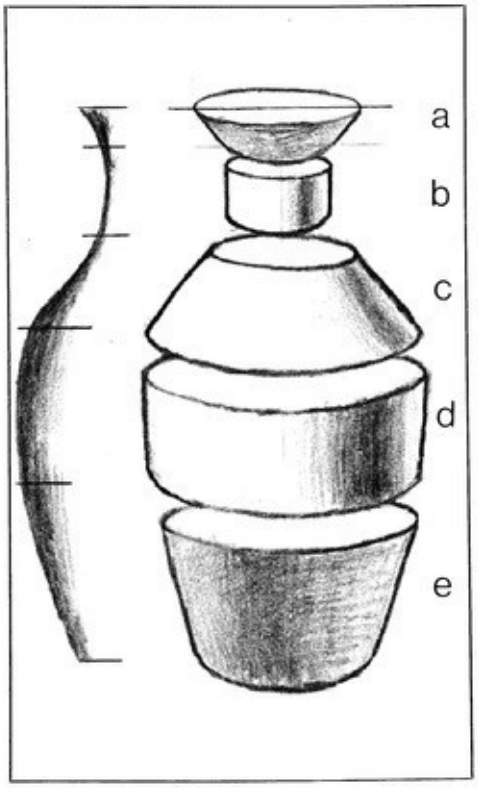
c Here the modelling is worked over, softened, refined.

d Finally the shadow is 'worked over', reflected lights are lifted out. The whole exercise is completed after many hours. This type of working, applied to the antique casts or living models, could take many days.

An examination of the vase (fig. 35) will show that in it there are two inverted cones, a and e, an upright cone c, and two approximately cylindrical areas b and d. The inverted cones will tend to face away from the light and therefore be in shadow. The upright cone will face up towards the light and therefore will have little shadow, and the two cylindrical areas will each have the same proportion of light and shadow. Additionally the inverted cones may throw their own shadow over the lower form. The highlights will all occur on a section line drawn down the vase and at certain areas of concavity or convexity (see figs. 25 and 26).

This may seem to be making very heavy weather of a comparatively simple form, but when trying to make concise statements straight from the figure, to sort out the significant tones from a complicated mass of tones, it is then that understanding rather than copying is necessary.

Fig. 35



Figs. 36–40 A selection of drawings to show the use of different media (see page 9).

36

Fig. 36 A rapid sketch in watercolour on Watman paper, the initial drawing sketched in lightly in pencil—very slight, with as few layers of washes as possible.

37

Fig. 37 Indian ink and brown watercolour on white cartridge paper. Ink reduced with water can be used for the washes, but it often soaks into the paper leaving hard, unalterable edges. Watercolour edges can be more readily softened.

38

Fig. 38 A drawing made in red and black conté crayon. A wet brush was rubbed over the chalk, producing an easily controlled wash.

Fig. 39 Pastels on dark brown paper. Most of the flesh tones here are represented by the brown paper. Colour, except in the background, has been applied sparingly.

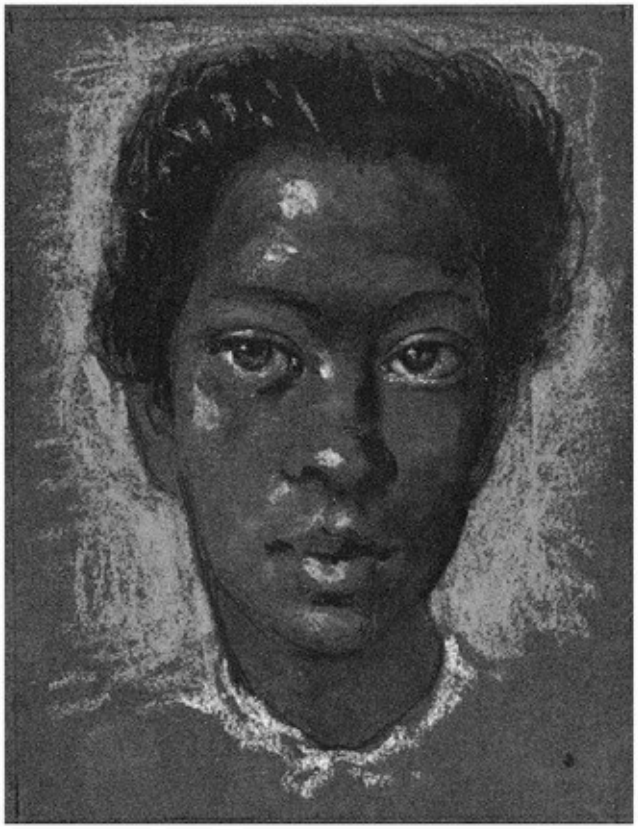
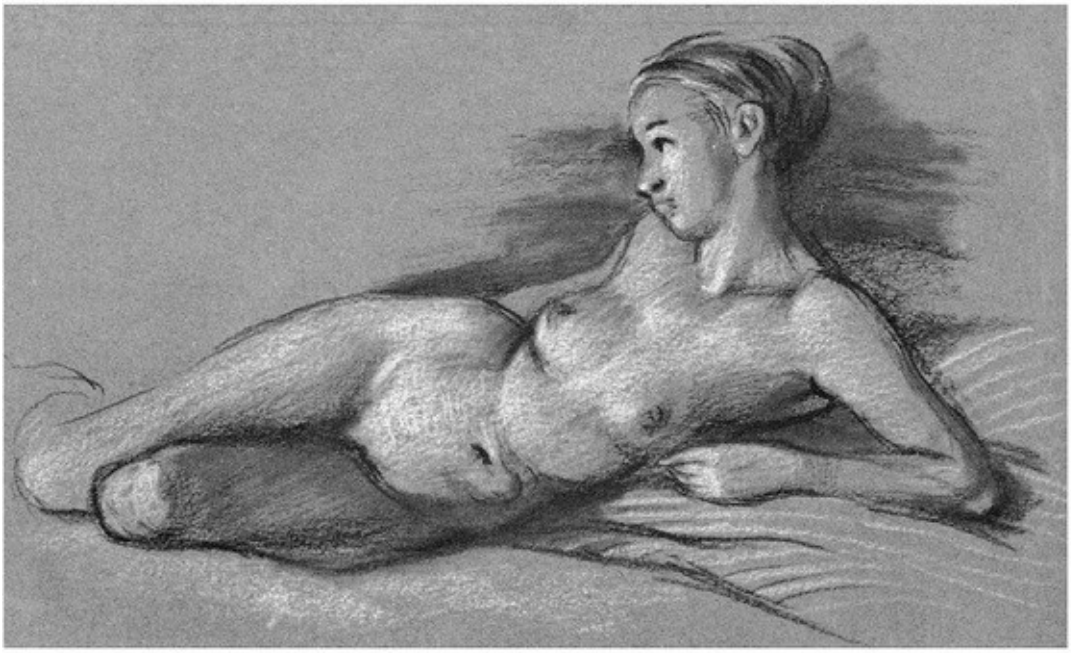


Fig. 40 This drawing was done on dark greeny-grey sugar paper in black chalk heightened with white chalk. When using these media, it is better not to work the white over the black as this produces muddiness.



The anatomy of the figure

The study of anatomy is a profound subject in itself and even the more superficial aspect, as studied by artists, usually requires quite a thick volume. Some knowledge of the working of the body is necessary if the draughtsman is to draw with understanding. In the space available here only the main details of bones and muscles can be included. I hope to give more attention to the effect of these bones and muscles on the appearance of the body than to their individual characteristics. In studying anatomy the warning must be given that it is a means to an end and that drawings are not necessarily good in proportion to the amount of anatomical study revealed; if this were so, then most surgeons would be excellent draughtsmen, and this is not by any means the case. Conversely, the greatness of Michelangelo and Rubens as draughtsmen is based on various other qualities than the excellence of their anatomical accuracy. Sir Kenneth Clark, in his book Leonardo da Vinci, comments that '(Leonardo's) scientific researches were undertaken for their own sakes, and anatomy was only one manifestation of his curiosity into the workings of nature'; and he quotes from Leonardo's own

writing—'O anatomical painter beware, lest in the attempt to make your nudes display all their emotions by a too strong indication of bones, sinews and muscles you become a wooden painter'.

From the point of view of acquiring skill in figure drawing the following anatomical notes are neither more nor less important than the other sections of this book.

The basic structure of the body is the skeleton. This is filled out by various organs which enable the body to live, and muscles which activate the bones and organs. There is a vast number of muscles and only a few of the more superficial can be referred to here. All the bones and muscles have both Latin and English

names. There are instances when the Latin name is neater and better known, e.g. semi-tendinosus or tibialis anticus (the half-tendon or the front-of-the-shin-bone), whilst there are other instances where the English name is more readily remembered, e.g. common extensor of the fingers or external oblique (instead of extensor comminis digitorum or obliquus externus). I have used those names which seem to come most readily to mind. I would like to stress that the names are given mainly for reference, it is not necessary to learn them by heart unless you intend to teach anatomy.

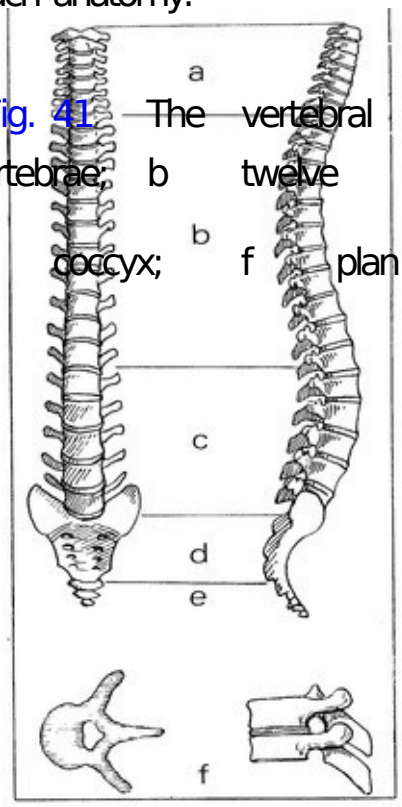


Fig. 41 The vertebral column a seven cervical vertebrae; b twelve dorsal vertebrae; c five lumbar vertebrae; d sacrum; e coccyx; f plan and elevation of typical vertebra.

In this section will be found diagrams to show the principal bones and muscles of the figure, and tables of identification. Further details of the exact shape of muscles, detailed information of their origins and insertions, may be sought in one of the many more technical treatises on anatomy. I will comment

only on some of the general characteristics of the various parts of the body as apparent on the surface. The head I propose to leave until later on, as it is the most important single part of the anatomy and is worthy of study in its own right.

The trunk

In considering the trunk of the figure, the centre of the whole structure is the backbone (fig. 41). Although the backbone, or vertebral column, is made of many small units, from the draughtsman's point of view it is essentially the strong pliant core of the whole figure, rather like a springy cane which will bend slightly in almost any direction but not dramatically at any one point. This is achieved by a series of fairly small drum-like bones mounted on each other (24 altogether) with soft pads in between. The upper seven (a) form the framework of the neck (cervical), the next twelve (b) support the ribs (dorsal) and the lower five (c) are unattached (lumbar). The backbone sits on the sacrum (d), which would seem to be made of five flattened vertebrae fused together, and two or three small insignificant bones at the end (e, coccyx) which are probably our remnants of a tail.

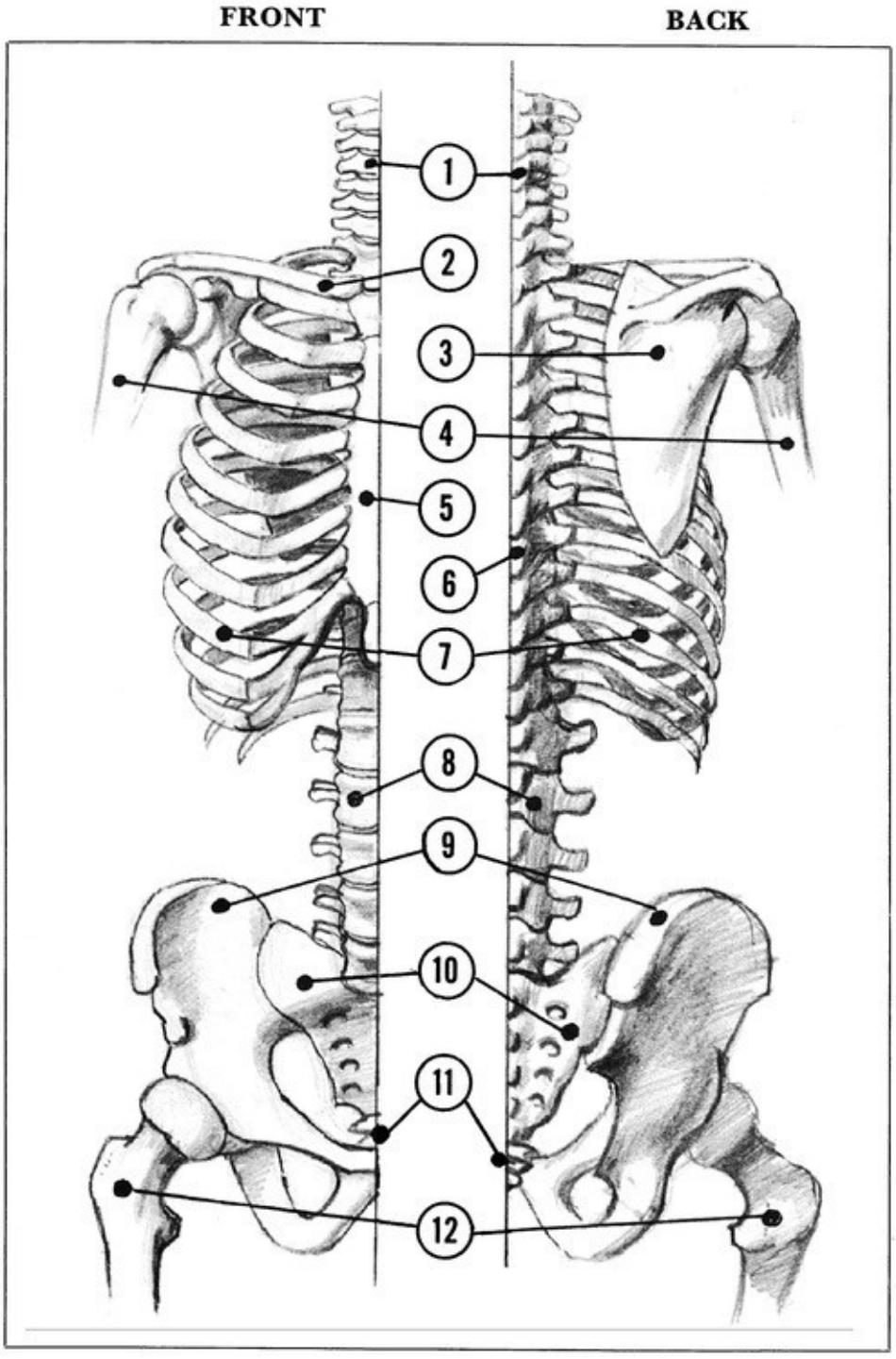


Fig. 42 Bones of the trunk

1. Cervical vertebrae (seven)
2. Clavicle (collar bone)

3. Scapula (shoulder blade)
4. Humerus
5. Sternum (breast bone)
6. Dorsal vertebrae (twelve)
7. Ribs (twelve pairs)
8. Lumbar vertebrae (five)
9. Ilium (pelvis)
10. Sacrum
11. Coccyx
12. Head of femur (thigh)

The dorsal portion of the backbone holds the twelve ribs which come together at the front on to the sternum (figs. 41 and 42). Thus a cage is made, something like an egg-shell, with the top and bottom cut away. This structure is fairly rigid and strong enough to protect the heart and lungs inside.

The rib cage is also pliant enough to allow for expansion and contraction in breathing and also some slight resilience when the backbone bends. The bone structure of the cage is extended on each side by the collar bones (clavicles) at the front and shoulder blades (scapulas) at the side and back. Into a socket in this group is fitted the arm which thus has a remarkable range of movements.

Emerging from the top of the cage is the neck portion (cervical) of the backbone. Emerging also in front of this is the windpipe with other structures attached.

The lower part of the trunk is made up from the two wings of the pelvis, joined to the sacrum at the rear (fig. 42). It forms a strong basin-like structure in which are contained many organs, such as the intestines and reproductive organs.

In the side of the pelvis is a smooth round socket which receives the head of the thigh bone (femur). Little evidence of the shape of the pelvis is visible on the

surface, as the internal organs and powerful muscles of the trunk almost wholly obliterate it and disguise its shape. In fact it becomes very box-like in form (fig. 44a). Because the pelvis is fastened rigidly to the sacrum it is always in a fixed relationship to the lower part of the backbone, which means that the latter is always at right-angles to a line across the top of the pelvis or across the heads of the thigh bones. I think this will become clear in the three sketches in fig. 43. At a the weight is evenly divided between both legs and the pose is perfectly symmetrical and balanced about a straight vertical axis. At b the weight has shifted onto the right leg while the left leg relaxes; immediately the left side of the pelvis falls, taking the tilt of the backbone with it. If the backbone were rigid

the right hip would have to be pushed out to the right to maintain equal masses on each side of the centre of gravity, but because of the spring-like form of the backbone the upper part of the body can be brought back over the central axis (c).

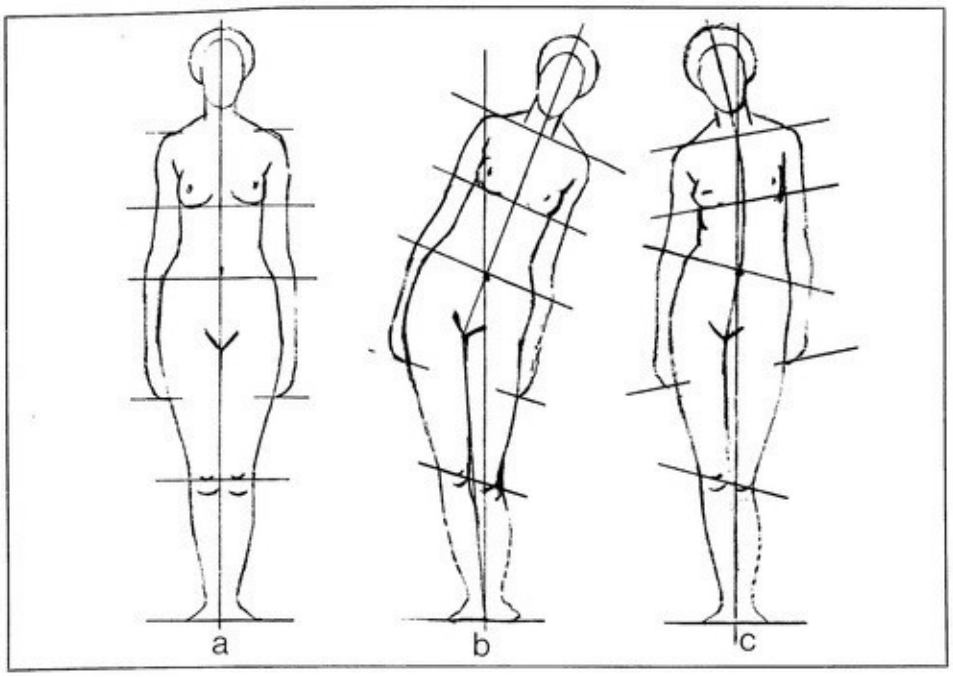


Fig. 43

Fig. 44

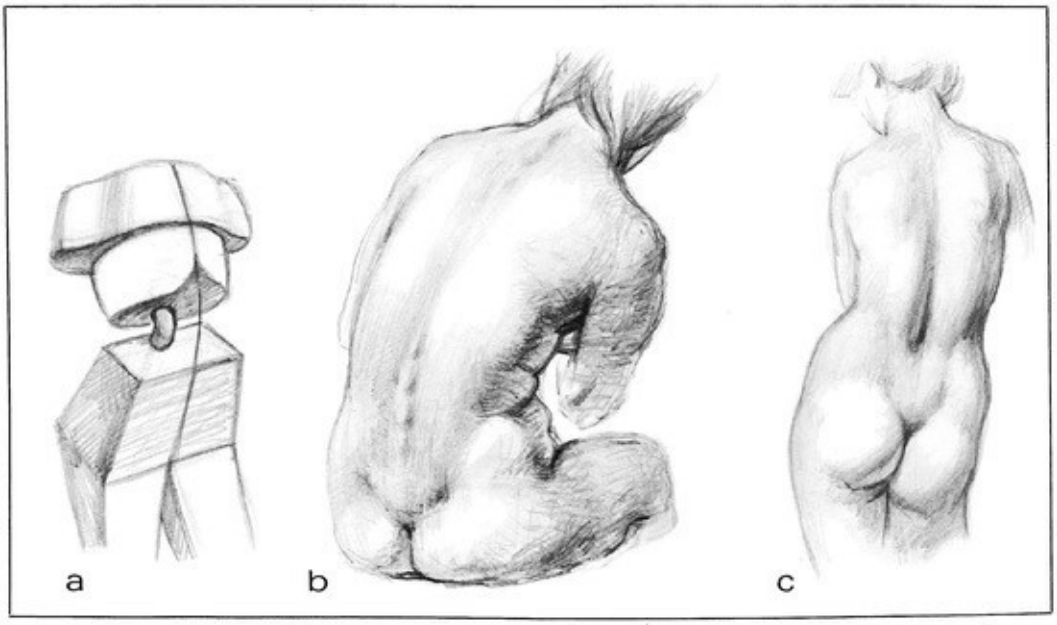
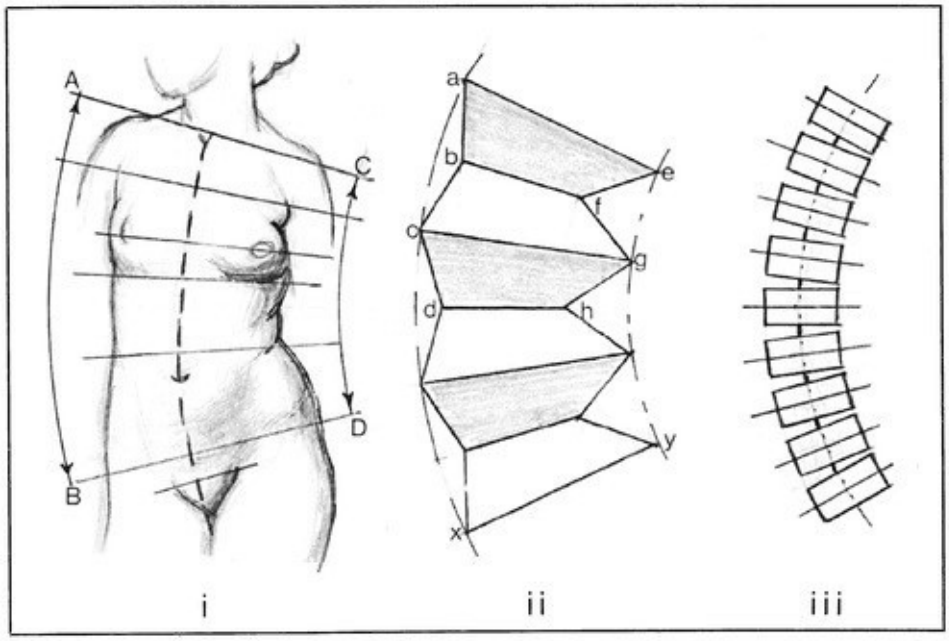


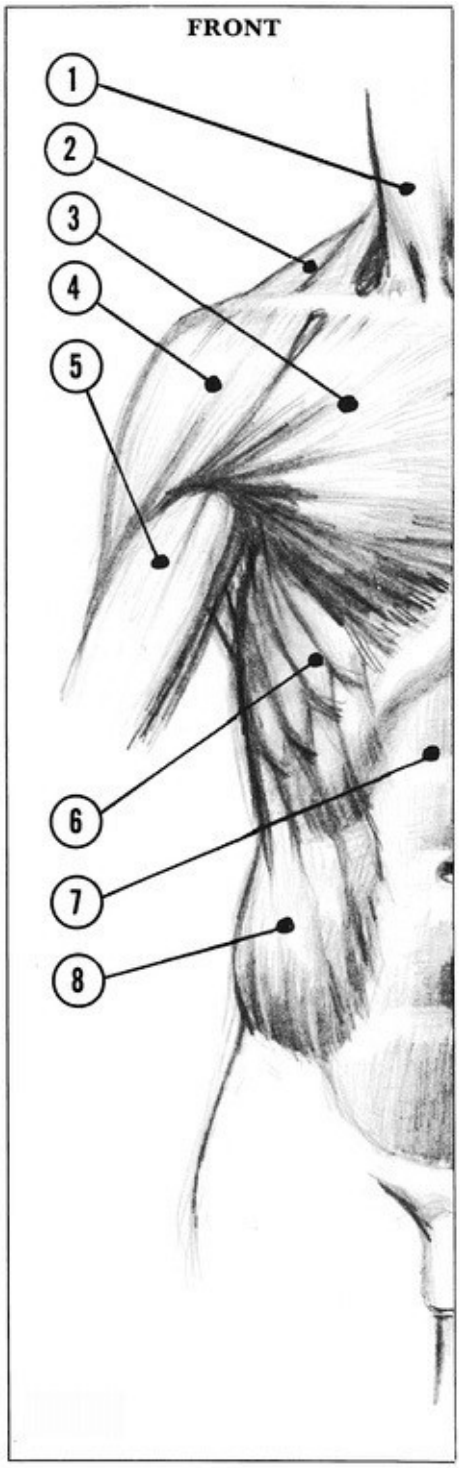
Fig. 45



The area of the spine which is capable of most movement is the lumbar region —the five vertebrae in between the pelvis and the ribs. Fig. 42 shows that no other bony mass is fastened to these vertebrae to inhibit their movement. This

mobility is apparent in fig. 44. In b can also be seen the surface tautness where the erector spinae muscle, which normally buries the spinal column in between thick rolls of muscle, is stretched tightly causing the spines of the lumbar region to show prominently below the surface. The potential curvature from side to side is so great that often in standing poses, as fatigue develops and more and more weight is thrown on to the supporting leg, the lowest rib almost rests on the highest part of the pelvis.

Moving upwards to the rib area, the influence of the curving spine can be seen also in fig. 45 (i) where the contours of the body curve in sympathy. It will be seen too, that the side AB is stretched out, while exactly the same amount of material between C and D is compressed into about three-quarters of the space, which produces deep creases and prominent bulges on the short side. This can be appreciated immediately in a concertina (ii) where all the lengths ab, bc, cd, are equal to each other and also equal to ef, fg, gh, yet the total length ax is less than ey. In the figure, each pair of ribs remains roughly at right-angles to its own vertebra as indicated at (iii).



apposite Fig. 46 Muscles of the trunk—front view

1. Sterno-mastoid
2. Trapezius

3. Pectoral
4. Deltoid
5. Biceps
6. Serratus magnus
7. Rectus abdominis (covered by aponeurosis)
8. External oblique

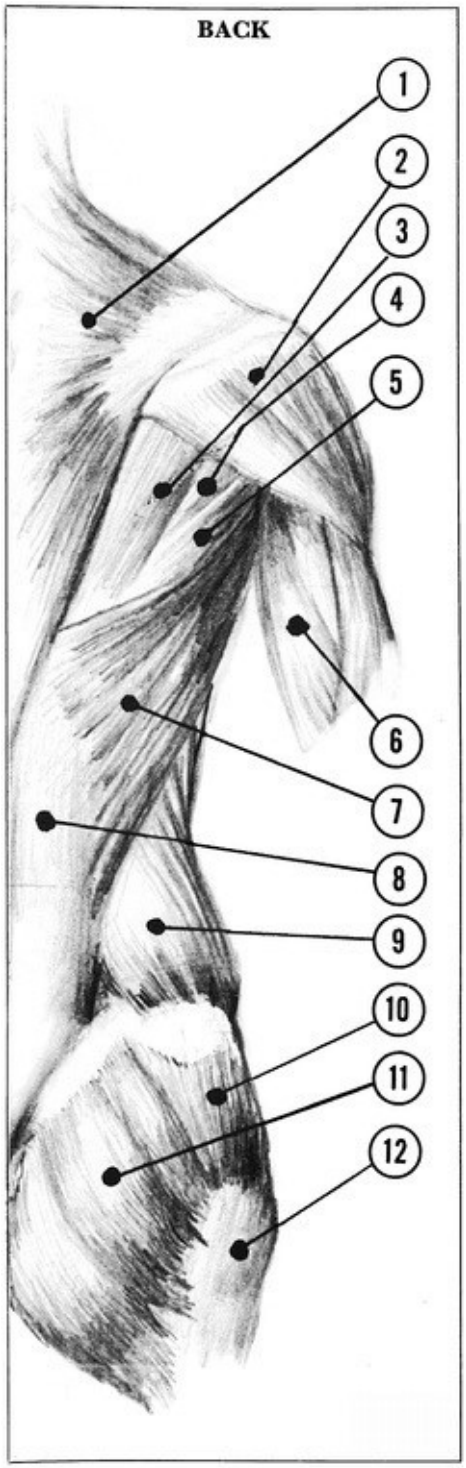
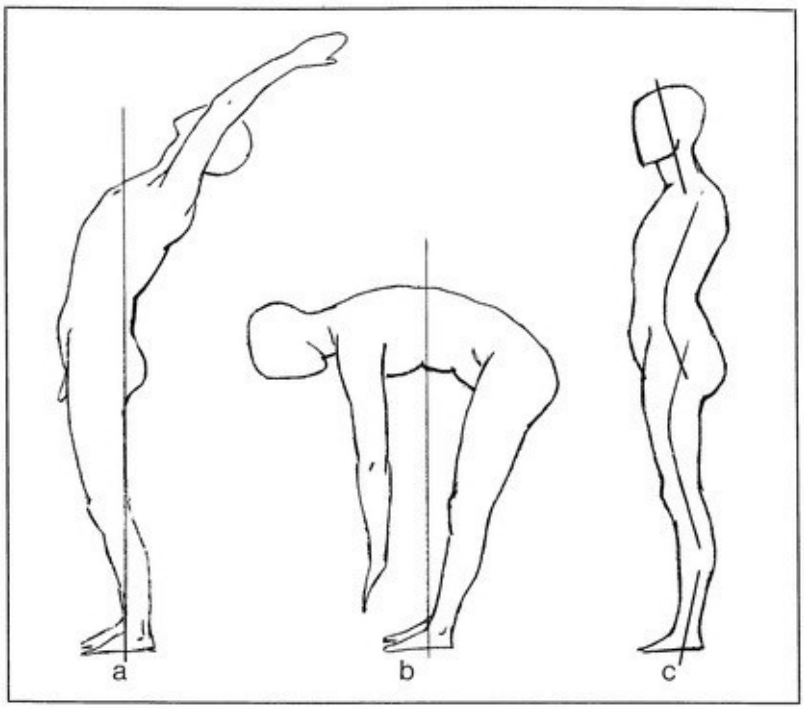


Fig. 47 Muscles of the trunk—back view

1. Trapezius
2. Deltoid

3. Infra spinatus
4. Teres minor
5. Teres major
6. Triceps
7. Latissimus dorsi, and
8. its aponeurosis covering erector spinae muscle
9. External oblique
10. Gluteus medius
11. Gluteus maximus
12. Ilio tibial band

Fig. 48



Similar stretching and compression takes place when the figure bends forwards and backwards and adjustments of balance occur about the centre of gravity (fig. 48a and b).

In the side view of the figure (fig. 48c) it will be seen that the movements of the various axes weave their serpentine way upwards about a vertical line. A

glance at the side view of the backbone (fig. 41) will show this serpentine shape

curving round the back of the ribs (dorsal) into a deep hollow in the lumbar region, and then out again at the sacrum. When the figure, seen from the side, stands erect the result is therefore as shown. The pose starts from the feet and moves backwards up the calf, forward up the knee and lower thigh and back up the upper thigh. The axis of the pelvis then juts forwards, the ribs tend to lean backward and finally the neck thrusts forward from the shoulder.

The chest region in the male figure is a fairly flat area, partly due to its extension on each side by the shoulders and arms. In the two sketches of male bodies from front and rear (fig. 49) I have tried to show something of the characteristic sections through the chest, ribs and pelvis. The upper part of the chest is bounded at the top by the almost horizontal line of the two collar bones (clavicles). Above this is the shoulder area and the neck.

A word about the shoulder mechanism may be useful here. Reference to fig. 42 will show how that wonderfully sensitive instrument of man, the arm, is given a wide range of movements by being supported by a hinged joint which itself has very considerable freedom of movement.

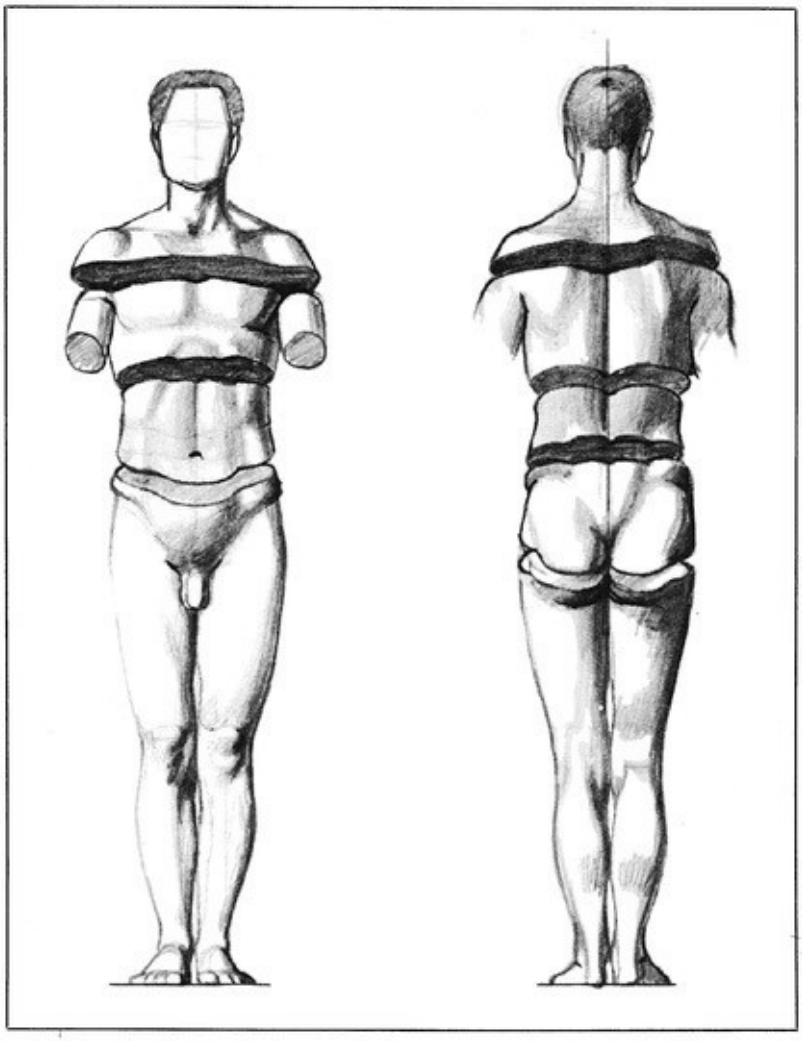


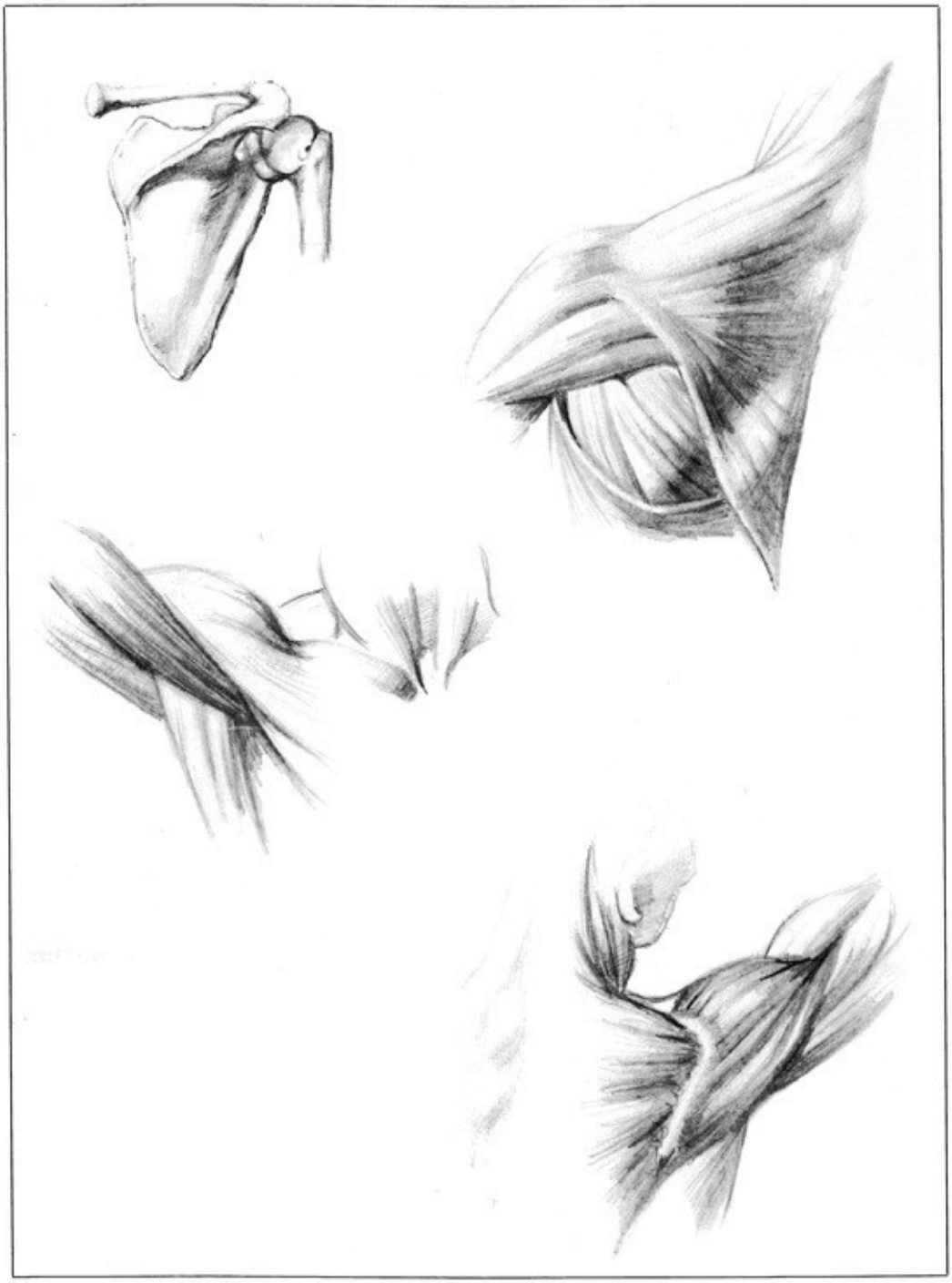
Fig. 49

The collar bone is hinged on the top of the breast bone (sternum). It moves outward and joins to a bony ridge on the shoulder blade (scapula). The shoulder blade is made to slide easily over the surface of the rib cage. Something of the range of movement available to this mechanism can be experienced, even without arm movement, by 'shrugging' the shoulders. Fig. 50 will show the tremendous power surrounding this area with at least nine muscles working in some way, some of them among the most powerful in the body.

At the very top of the trunk is the neck, built round the cervical vertebrae at

the back and the windpipe in the front. Some details can be seen in fig. 51a and b where I have reconstructed in anatomical terms the neck of Michaelangelo's

'Adam'. In drawing the neck, you should be careful not to over-emphasize the anatomical forms, particularly the sterno-mastoid muscles which can be seen to make a sort of V-shape cutting across the neck (fig. 46). It is much better at all times to think of the neck geometrically as a cylinder capable of supporting the head on the shoulders, as shown in fig. 51c and d, both sketched from paintings by Ingres. Fig. 51c shows also the interesting 'roll' of muscle (trapezius) which builds up above the collar bone. The shape of this and its integration with the roundness of the neck is clearly revealed when a necklace is worn (see also fig. 91b). Another characteristic of the neck is that it does not normally stand straight up on the shoulders but juts forward, continuing smoothly the angle of the backbone (fig. 48c).



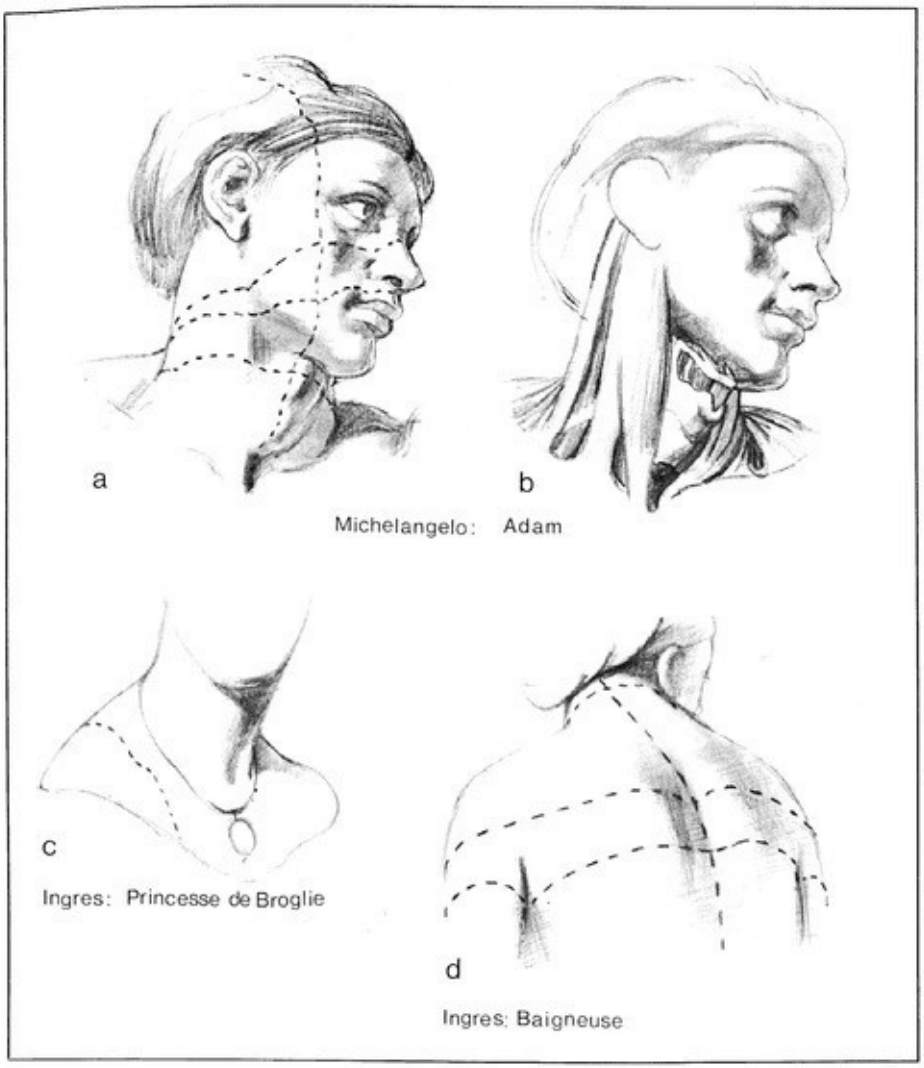


Fig. 51 a This sketch taken from the head of Adam in the fresco on the ceiling of the Sistine Chapel, Rome, shows Michelangelo's profound knowledge of anatomy and also his ability to contain it within a strong formal structure. In b I have attempted to indicate the thoat and the main muscles. In c and d, two examples from Ingres' paintings of women, the anatomical features have been suppressed to maintain the elegance and columnar form of the neck.

Between the throat, the collar bones and the sterno-mastoid muscles there is always a hollow, sometimes deep, sometimes very slight. This hollow, though

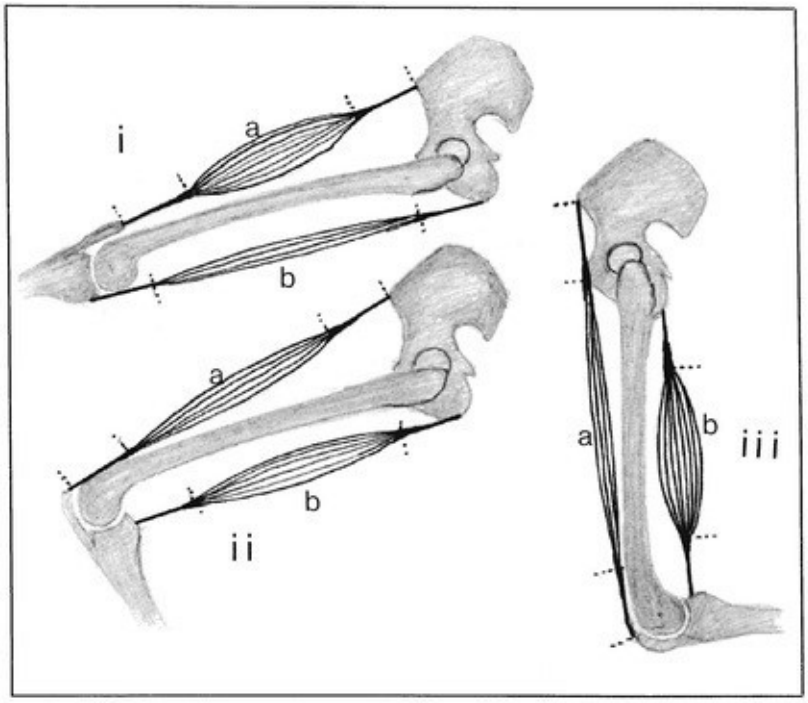
not especially important in itself, is very useful as a guiding point in drawing a freestanding figure. Almost invariably it will be exactly over the inner ankle of the leg on which the model stands. It is therefore not uncommon in drawing to

construct first the head and neck down to this 'pit' and then to drop a plumb-line from it. This relationship is only likely to occur in a completely freestanding pose; any resting on hand or arm or leaning against an object will disturb the relationship.

Action of muscles operating a joint

Before discussing the upper and lower limbs it may be useful to describe the action of a typical pair of muscles in operating a joint or joints. Muscles vary considerably in shape but in general are composed of fibrous tissue with a tendon at each end. The fibrous tissue expands and contracts on orders from the brain, the tendons are fixed in length. The arm and leg contain joints and muscles which are more typical of their kind than those in the rest of the body. In fig. 52 I have shown a rudimentary leg mechanism, with the femur revolving in a socket at the top and the tibia moving around it at the lower end. The lower bone has a spur (knee cap) on to which the tendons attach. In the case of the arm and the leg, the muscles may have a dual activity. For instance, the rectus femoris in the leg (see fig. 65) can bend the leg at the groin and can also, by pulling on the knee cap, straighten the lower leg. When the muscles are stretched out their fleshy part is thin, but when shortened the fibres bunch into a thickened form—flexing the arm to display the biceps is a good example of this. The appreciation of the functioning of muscles in this way is desirable when, for instance, you are drawing two legs where a muscle may be tensed in one and relaxed in the other, thus producing different contours.

Fig. 52 Three movements of a leg: (i) leg stretched out and raised, muscle a at its shortest and thickest, muscle b at its longest and thinnest; (ii) knee bent, stretching muscle a and shortening muscle b; (iii) knee remains bent, thigh vertical, muscle a at its longest and thinnest, muscle b at its shortest and thickest. Only fbrous parts change in length and form.



The upper limb

The upper limb consists of the arm, wrist and hand.

In the arm are three bones, the humerus in the upper part, the ulna and radius below. Reference has already been made to the great mobility of the shoulder and this is extended by the wide arc through which the humerus can revolve in the shoulder socket.

The most ingenious joint however, is at the elbow, which allows the lower arm to bend and rotate. In fig. 54 it will be seen that the ulna bends and straightens only round a simple 'bobbin' joint on the humerus, whereas the radius can also rotate on a ball joint. At the wrist the reverse happens. The ulna has the rotating joint and the radius has the simple up-and-down movement. This rotating action is not present in the leg. Because of the necessity for the forearm to rotate in this way the muscles concerned stretch not only along the arm but also somewhat

diagonally. In the forearm the fibrous fleshy portion is generally towards the elbow whilst the tendons are nearer the wrist causing the contours to taper downwards.

The limb is not by any means symmetrical in shape—in fact the great beauty of the arm (and leg) is the asymmetrical yet balanced rhythm. In fig. 57 I have tried to show this contrast. The inside contour tends to sweep downwards in a

long, relatively unbroken curve, while the outer contour progresses in four approximately equal 'bounds'. The beauty of this can, I think, be contrasted with the different beauty of the mechanically turned form with its straight axes and perfect symmetry.

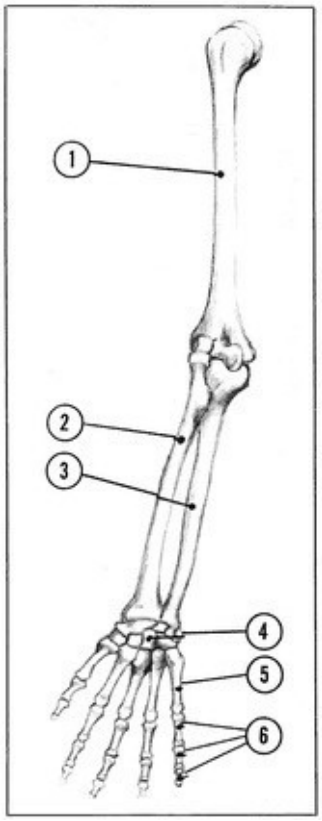


Fig. 53 Bones of arm and hand—front view

1. Humerus
2. Radius
3. Ulna
4. Eight carpals (wrist)
5. Five metacarpals
6. Fourteen phalanges (two only in thumb)

Fig. 54 The rotation of the lower arm

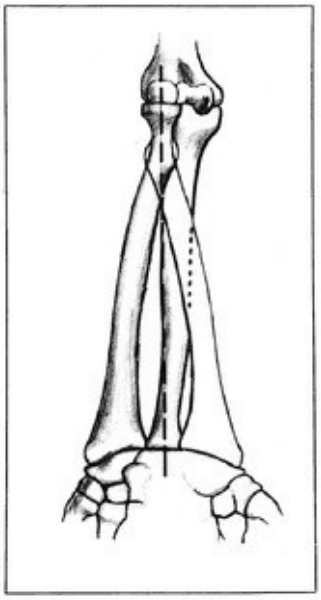


Fig. 55 From the cartoon Solders surprised when bathing by Michelangelo (1475–1564), British Museum, London.

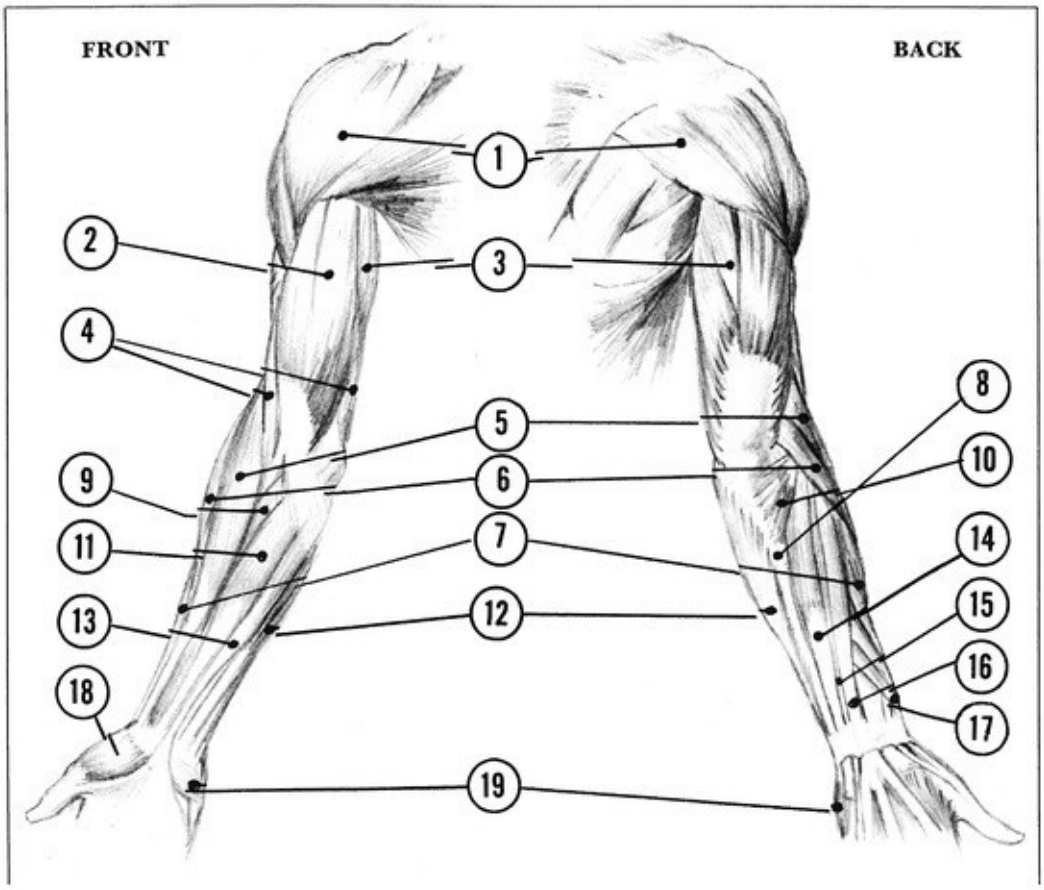


Fig. 56 Muscles of the upper limb

1. Deltoid
2. Biceps
3. Triceps
4. Brachialis anticus
5. Supinator longus
6. Long radial extensor
7. Short radial extensor
8. Ulna
9. Pronator teres
10. Anconeus
11. Radial flexor
12. Ulna flexor
13. Palmaris longus
14. Ulna extensor
15. Extensor of little finger

16. Common extensor of fingers
17. Abductors of thumb
18. Thumb muscle
19. Little finger muscle

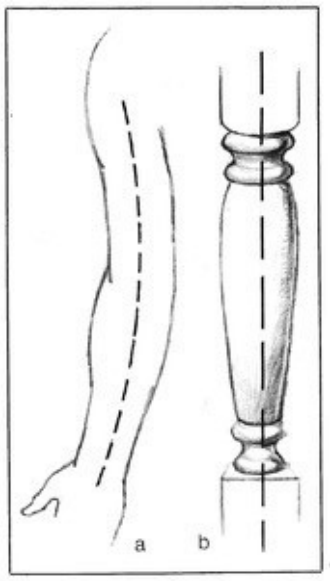
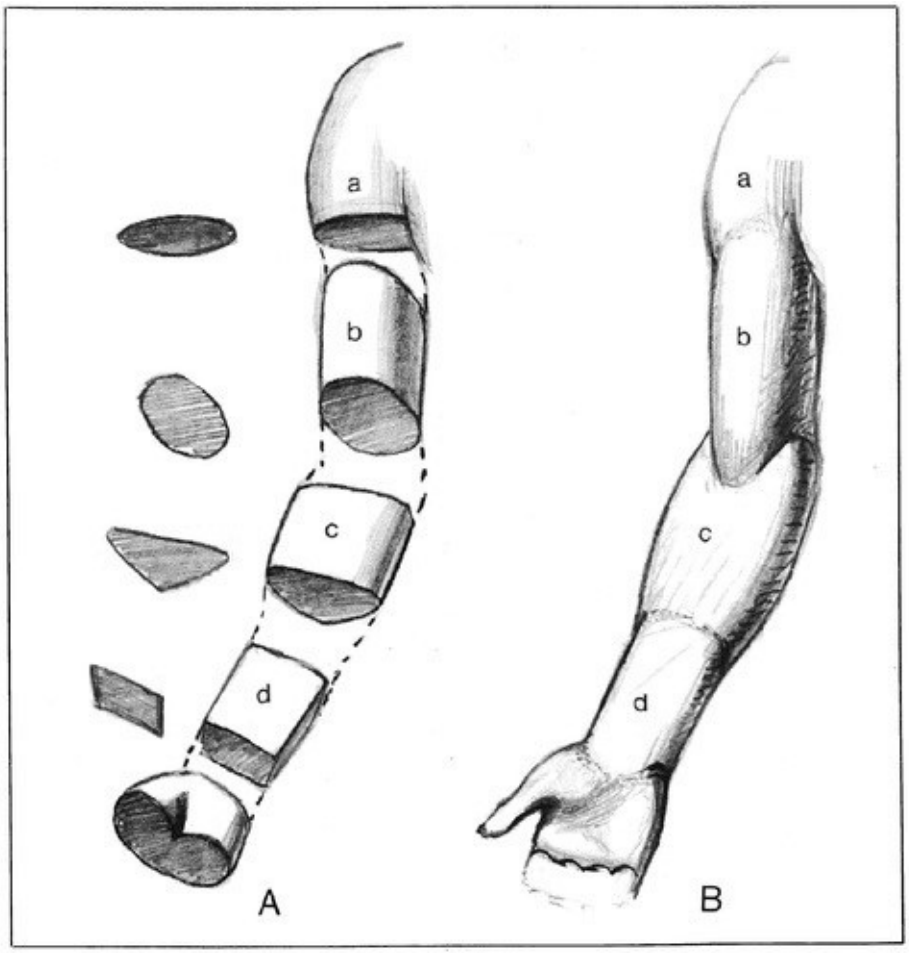


Fig. 57

The actual muscles which make up these fascinating contours can be seen in fig. 56 and the forms they create in the arm are shown in fig. 58. In A, the shoulder section (a) tends towards a horizontal ellipse, the bicipital section (b) towards a more vertical ellipse; section c is somewhat triangular and section d is rectangular. These changes of form can only be hinted at by the outline and some indication of the shadow will usually be necessary. In B it can be seen that the shadow edge is pushed backwards or forwards as the section changes shape. To express fully the forms of a limb (such as the arm shown here) the lines must express the rhythm of the linear flow, they must overlap each other correctly as shown earlier (figs. 19 and 21) and must be related carefully to the shadow areas.

This is why the type of shadow ‘copying’ demonstrated in fig. 34 can only result in superficiality.

Fig. 58


a
b
c
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A
a
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B

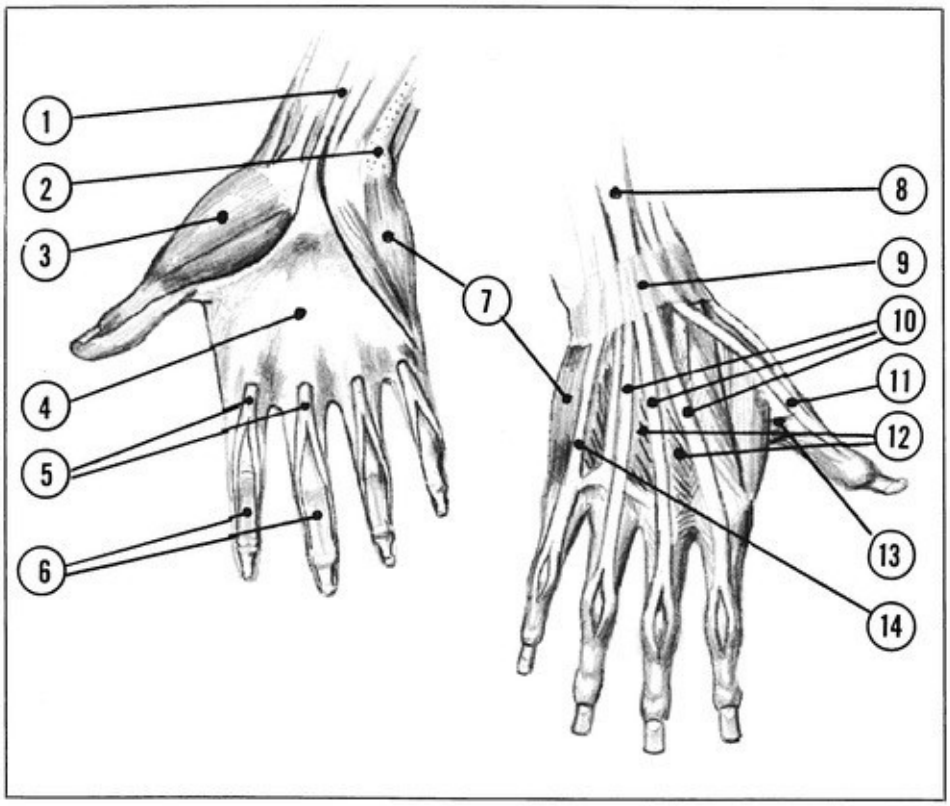


Fig. 59 Muscles of the hand

1. Palmaris longus
2. Ulna
3. Muscles of ball of thumb
4. Palmar fascia
5. Flexors of fingers emerging from palmar fascia
6. Deep flexors of fingers
7. Muscles of little finger
8. Common extensor of fingers
9. Annular ligament
10. Tendons of common extensor
11. Abductors of thumb
12. Interosseal muscles
13. Adductor of thumb
14. Extensor of little finger

The wrist is made up of eight small bones which help to give the hand

considerable range of mobility but are not readily visible on the surface and will not be commented on in detail.

The hand (figs. 53 and 59) is made up of a very considerable number of bones and muscles which enable it to perform many very delicate operations. From a drawing point of view it would seem to resolve into two main areas—the solid portion, i.e. the back and the palm, and the independent units, the fingers and thumb. The hand may vary from a powerful cubic masculine form to a soft rounded feminine form, depending more on interpretation than actual appearance.

The back of the hand is squarish in character, tapering outwards from the wrist to the knuckles. Each finger has three phalanges, the thumb has only two. When the hand is lying passive there is a distinct rhythm running through the corresponding joints of each of the fingers. The individual fingers may be interpreted either as cubes or cylinders, but they must be made to articulate correctly at the knuckles. To this end it is often wise not to force the individuality of each finger but to see them all as part of a scheme, that is, to observe, where possible, the plane containing the first phalanges of each of the four fingers (fig. 60).

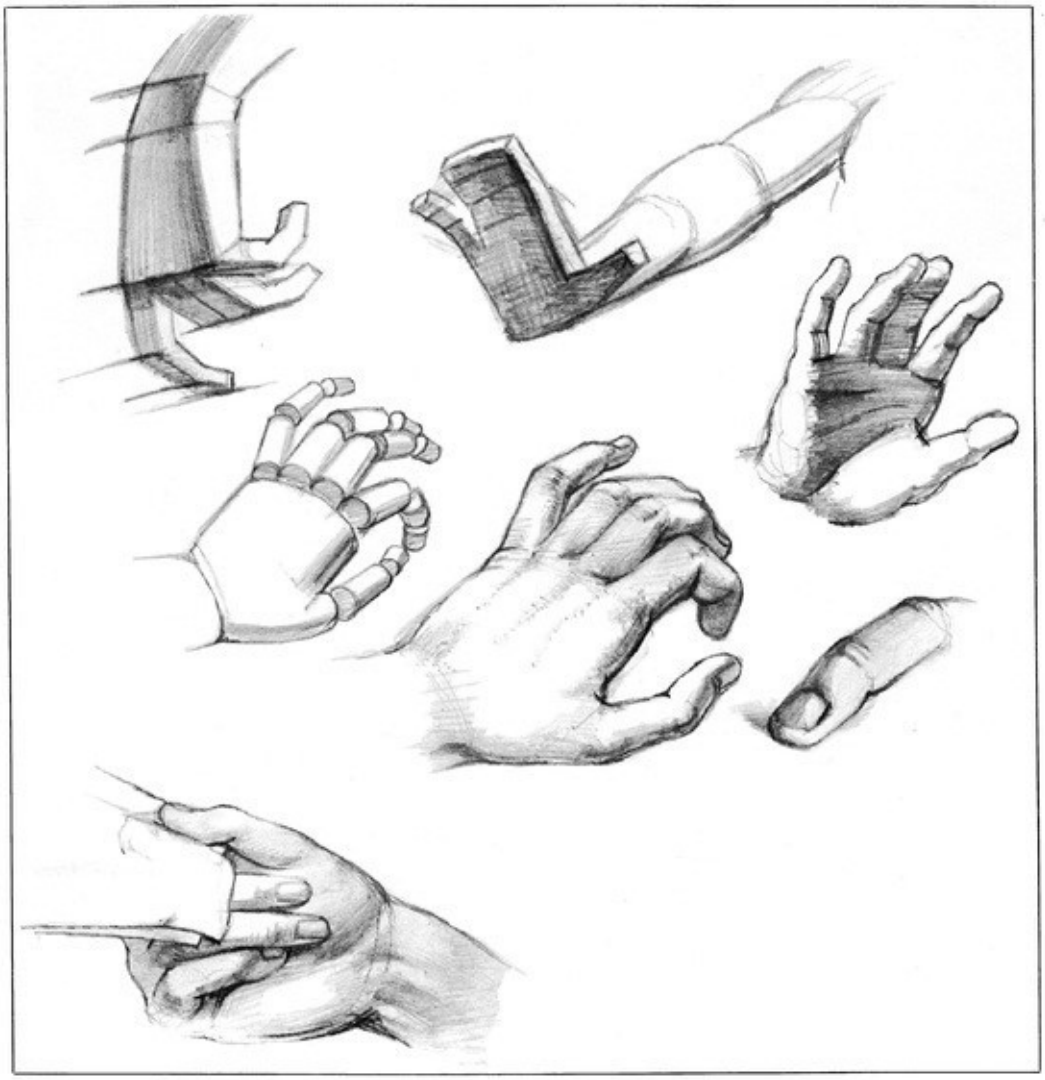


Fig. 60

Fig. 61 Hands by Holbein (detail from the portrait of Christina of Denmark; National Gallery, London). Beautifully and meticulously executed. Severely linear, almost certainly painted from a drawing. Concentration on the essential forms of the hands, all irrelevant detail omitted. The surface of the painting is smooth with little evidence of brush work.

Fig. 62 Hands by Rubens (detail from the portrait of Suzanna Fourment, Le Chapeau de Paille; National Gallery, London). Unlike the reserve shown in the Holbein, these hands show the ebullience of Rubens' personality in his sensual enjoyment of their soft fleshiness and the confident and expressive use of oil paint. Notice particularly the exquisitely delicate contour between the two hands.

The lower limb

The lower limb is composed of the femur, the tibia (with patella), fibula, seven bones forming the heel and instep, and the toe bones (fig. 63). The leg thus has many similarities to the arm. It is however less wide in its range of movements but probably more powerful. The head of the femur (thigh bone) is set almost at

right-angles to the main shaft, like a hammer head, and terminates in a smooth round 'knob' which rotates in a hollow in the side of the pelvis (fig. 42). This right-angled construction, not present in the arm, immediately gives the muscles attached to the outer part great leverage.

The knee joint is much simpler than the elbow joint in that it is only required

to operate in a forward and backward movement. The joint is therefore of a simple 'bobbin' type on which only the tibia (shin bone) moves. The interesting feature here is the extension at the front of the tibia by cartilage to the patella (knee cap) which offers additional leverage for straightening the leg, without a solid spur of projecting bone. By lying close around the joint the patella has reasonable protection.

When the figure stands with the weight evenly divided on both feet the two thigh bones, widely separated at the top by the pelvis, sweep downwards and inwards until the knees come together (fig. 64).

As compared with the radius in the arm, the fibula plays no part at all in the knee joint. In fact it has very little independence. It is fastened to the tibia quite firmly and there is no question of rotation. Perhaps one of its functions is to add strength to the leg without too much extra weight, very much like the structure of a radio mast which would be an immense weight if made of solid metal. The fibula also provides additional surface area for the attachment of muscles and at the ankle provides, with the tibia, part of the 'hinge' for the foot.

Among the seven bones of the ankle, perhaps the most significant is the os calcis (heel bone) which provides a strong spur at the back of the leg to which the powerful leg muscles are attached.

The toe area has some superficial resemblance to the hand, but the individual toes have not nearly as much independent freedom of action as the fingers. Whereas in the hand the thumb is on the side thus making the hand prehensile, the big toe lies in the same plane as the other toes and is mainly used for

balancing the figure by pressing on the ground.

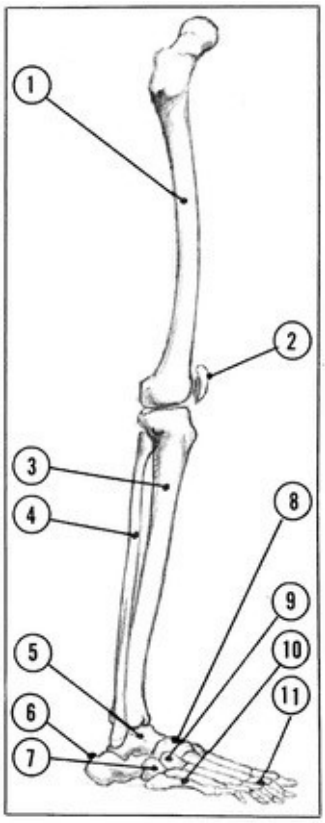


Fig. 63 Bones of the lower limb

1. Femur
2. Patella
3. Tibia
4. Fibula
5. Talus
6. Os calcis
7. Cuboid
8. Navicular
9. Three cuneiforms
10. Metatarsals
11. Phalanges

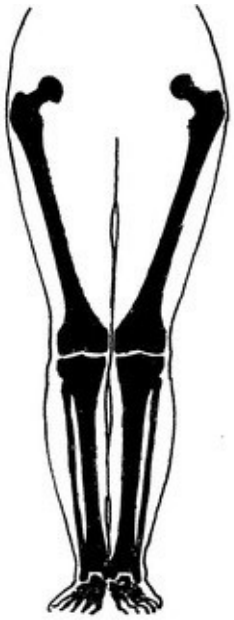


Fig. 64

The actual clothing of the bones with muscles can be seen in fig. 65. Broadly speaking they are in four groups. Flexors at the back of the leg, extensors at the front, adductors on the inside and abductors on the outside.

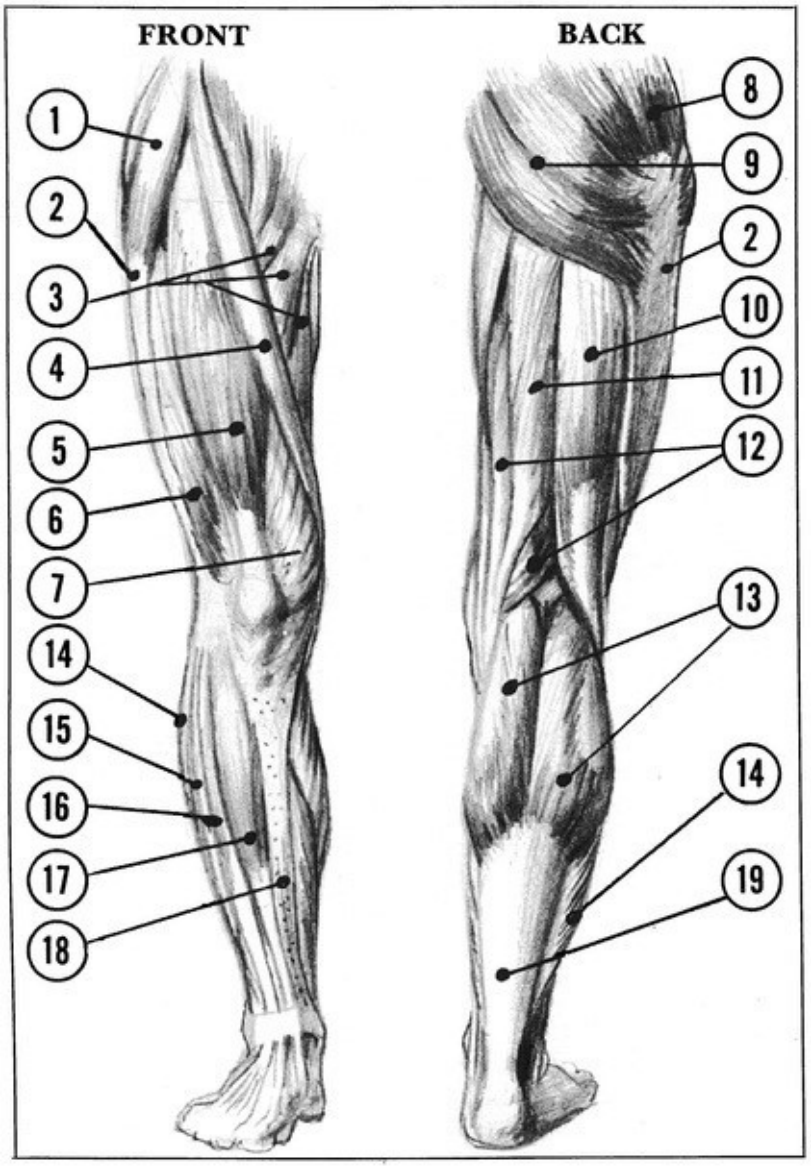
An interesting feature of the lower leg is that the tibia is quite uncovered by muscle on the inner face from the knee to the ankle (fig. 65). Thus the muscles are in three groups, front, outside and back, producing a section through the calf which tends to be flattened on the inner face. Fig. 66 shows an attempt to explain the sectional shape of different parts of the leg.

Fig. 65 Muscles of the leg

1. Tensor fascia latae
2. Ilio tibial band
3. Adductors
4. Sartorius
5. Rectus femoris
6. Vastus externus
7. Vastus internus

8. Gluteus medius

9. Gluteus maximus
10. Biceps
11. Semi-tendinosus
12. Semi-membranosus
13. Gastrocnemius
14. Soleus
15. Peroneus longus
16. Long extensor of toes
17. Tibialis anticus
18. Exposed tibia
19. Achilles tendon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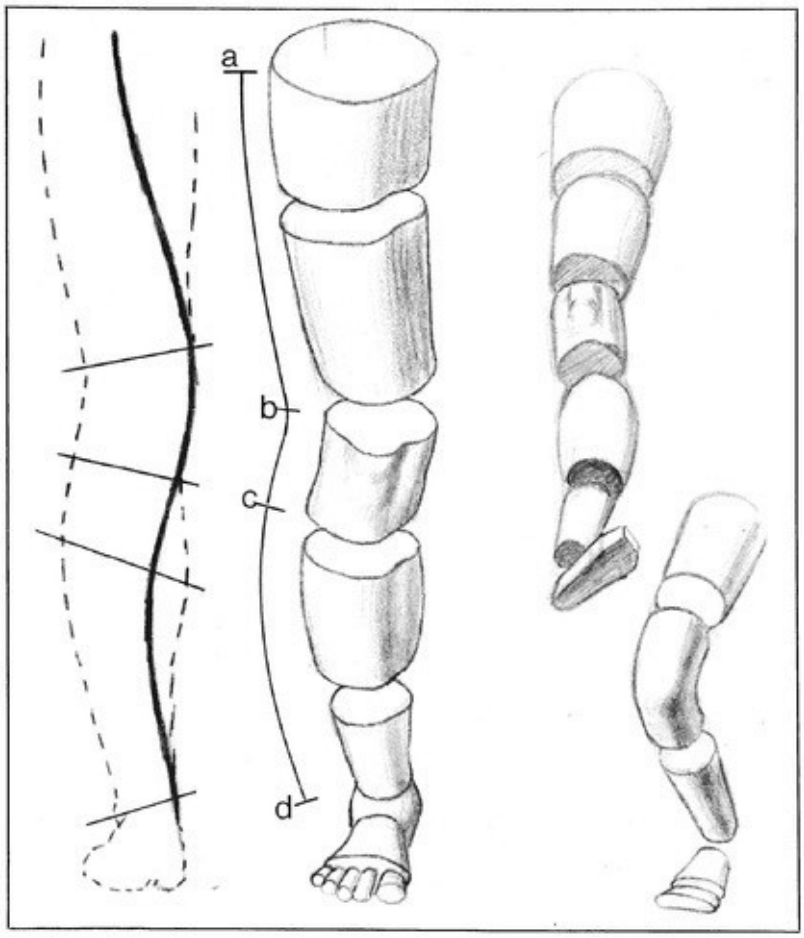


Fig. 66

I have already commented that the leg is made for power and strength. From this point of view it is interesting to note its shape both from the front and from the side. The legs, although supporting the figure, are not by any means straight props. The bones are curved slightly and are sustained in position by muscles which pull against each other, often diagonally, rather than straight up and down.

One muscle, the sartorius (fig. 65) is worth noting because it forms a very important rhythm passing diagonally down the front of the thigh from the outside to the inside behind the knee. This rhythm appears to be taken up

between knee and ankle by the exposed tibia, thus producing a serpentine rhythm as in fig. 66. The whole leg develops this rhythm as it moves downward in three phases a-b, b-c, and c-d. It is also noticeable that the hollows on one side do not occur opposite those on the other, and the contrast between the axis of the leg and the rigid symmetry of the lathe-turned form (fig. 57b) is just as clearly

marked here as it was in the arm.

Fig. 67

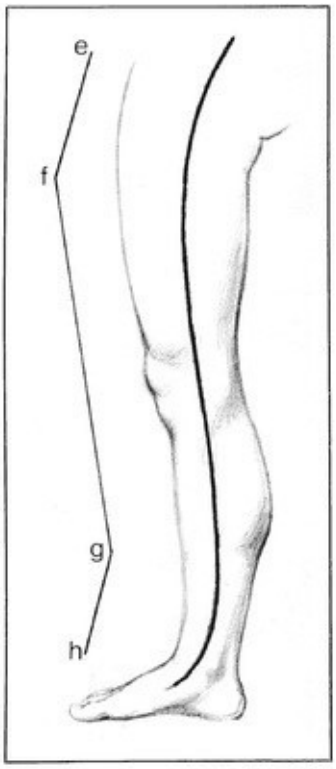
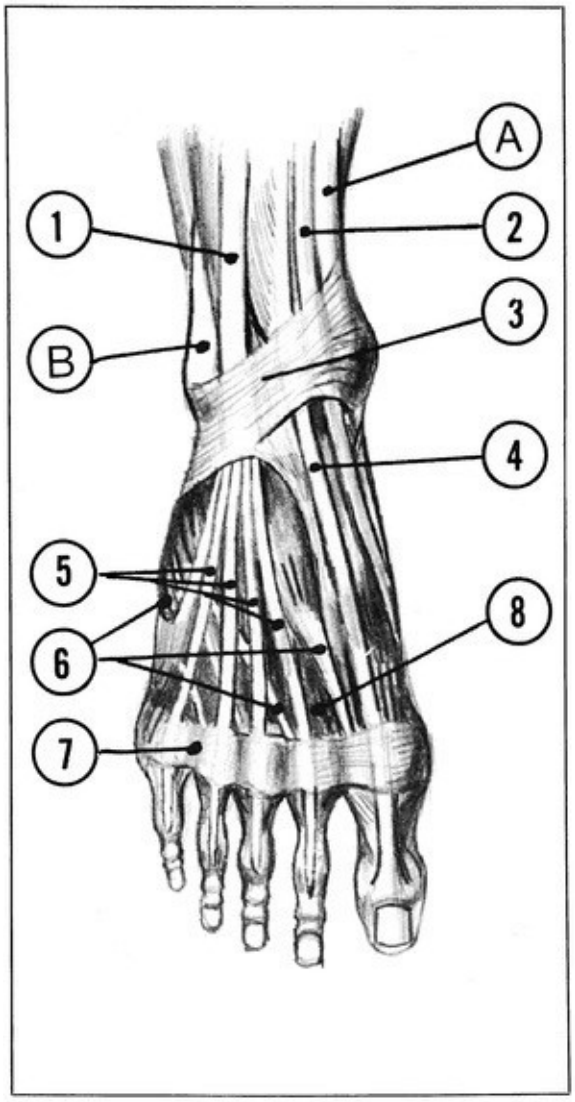


Fig. 68 Muscles of the foot

1. Tibia
2. Fibula
    1. Long extensor of toes
    2. Tibialis anticus
    3. Annular ligament
    4. Extensor of big toe
    5. Tendon of long extensor
    6. Short extensor of toes
    7. Phalangeal ligament
    8. Interosseal muscles



From the side aspect (fig. 67) the leg is just as beautiful and rhythmical, flowing down from hip to ankle in a long flattened S-shape of approximately three movements e-f, f-g and g-h. In fact, this curving rhythm persists right through into the foot and the contour of the lower leg flows continuously down the top edge of the instep.

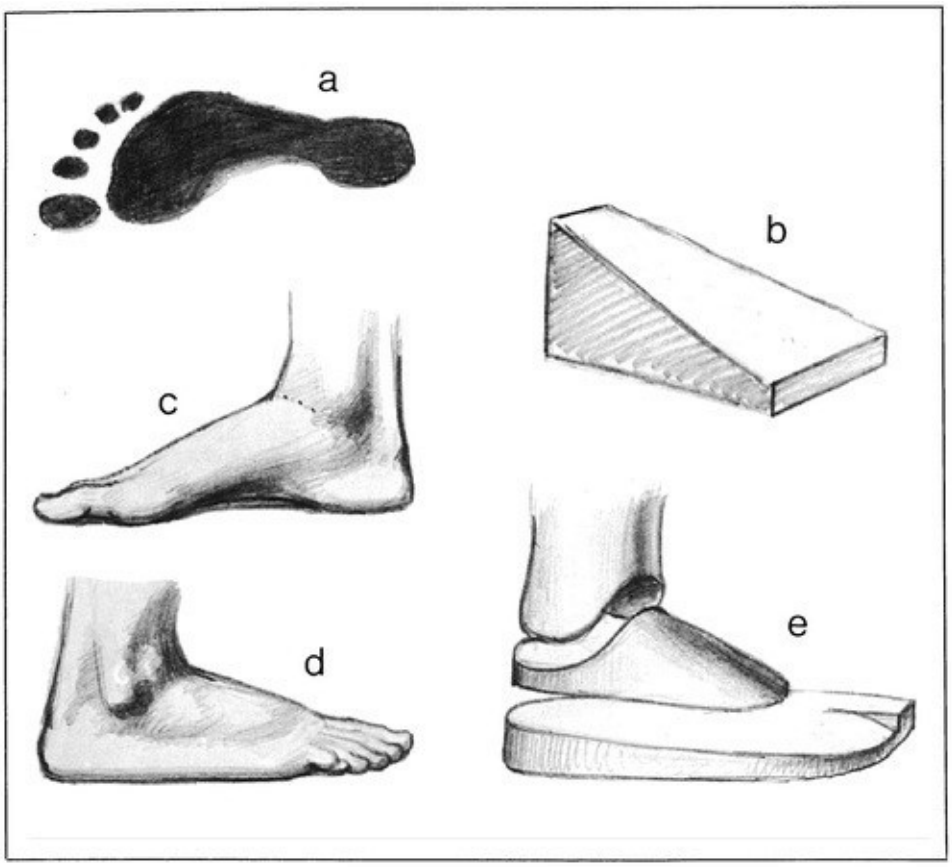


Fig. 69

The foot pivots between the two ankle bones and, because of the construction of the ankle from seven bones, is able to rotate in a limited circular motion. It is somewhat wedge-like in form starting narrow but deep from the ankle and finishing wide and shallow at the toes (fig. 69b). From the inside the high lift of the arch under the instep is clearly seen (a, c), the ball of the big toe and of the heel taking the weight of the body. Seen from the outside the arch, which is much lower is filled in by the muscle of the little toe and therefore the outer edge will be seen to lie close along the ground (d).

When drawing the foot as an adjunct to the rest of the figure it is often advisable to concentrate on its general shape without too much detailing of the

individual toes, but ensuring that the relationship between the foot and the ground is carefully observed. If the toes are to be drawn they should be done with care and great delicacy.

I think it is fairly true to say that a great many otherwise good and interesting

drawings fade away as they approach the extremities—head, hands and feet.

Comparison of the male and female figure (figs. 70 and 71)

In all drawing one has to be careful about accepting generalizations, because all rules or pseudo-rules have immediate exceptions. To say that the male is taller or stronger or heavier than the female is obviously not always true. Perhaps one might better consider such general comparisons in regard to idealized figures, and nowhere has this been better expressed than in fig. 70, studies of two figures for a decorative painting, L'age d'or by Ingres.

The male head tends to be more square than that of the female, particularly round the jaw region, and perhaps the whole figure responds better to a cubic interpretation as against the rounder treatment of the female. The neck is less round, the muscular structure and 'Adam's apple' showing much more prominently. The female neck is more cylindrical due to the larger thyroid glands at the front and also to the greater amount of subcutaneous fat filling the hollows between muscles. Throughout the female figure deposits of fat constantly contribute to the greater smoothness and roundness of the surface.

The chest and shoulder areas are also markedly different. The male collar-bones are longer and the shoulder muscles more powerfully constructed, giving a much wider and more powerful range of throwing activities. The front of the male chest is squarish and very wide. The pectoral muscles are strong and clearly marked. The female is noticeably narrower across the shoulders, the deltoid muscles are very much smaller. The pectoral muscles are almost

completely lost sight of under the fleshy form of the glands forming the breasts. These latter are not attached to the bone structure and can move and alter shape very appreciably when the arms move. Although the breasts are generally hemispherical it would be a mistake in drawing to think always of rounded edges. Sometimes, as when the arms are stretched up, the breasts may pull out to an elliptical shape; when the body is leaning back the soft under-edge of the breasts will be seen to take on the opposing curve of the rib cage.

In the pelvic zone the most striking fact is the relative narrowness of the male pelvis in relation to his shoulders. The female is quite the reverse —relatively narrow across the shoulders and wide across the hips. In the skeleton the male pelvis makes an acute V-shape, that of the female a wider-angled .

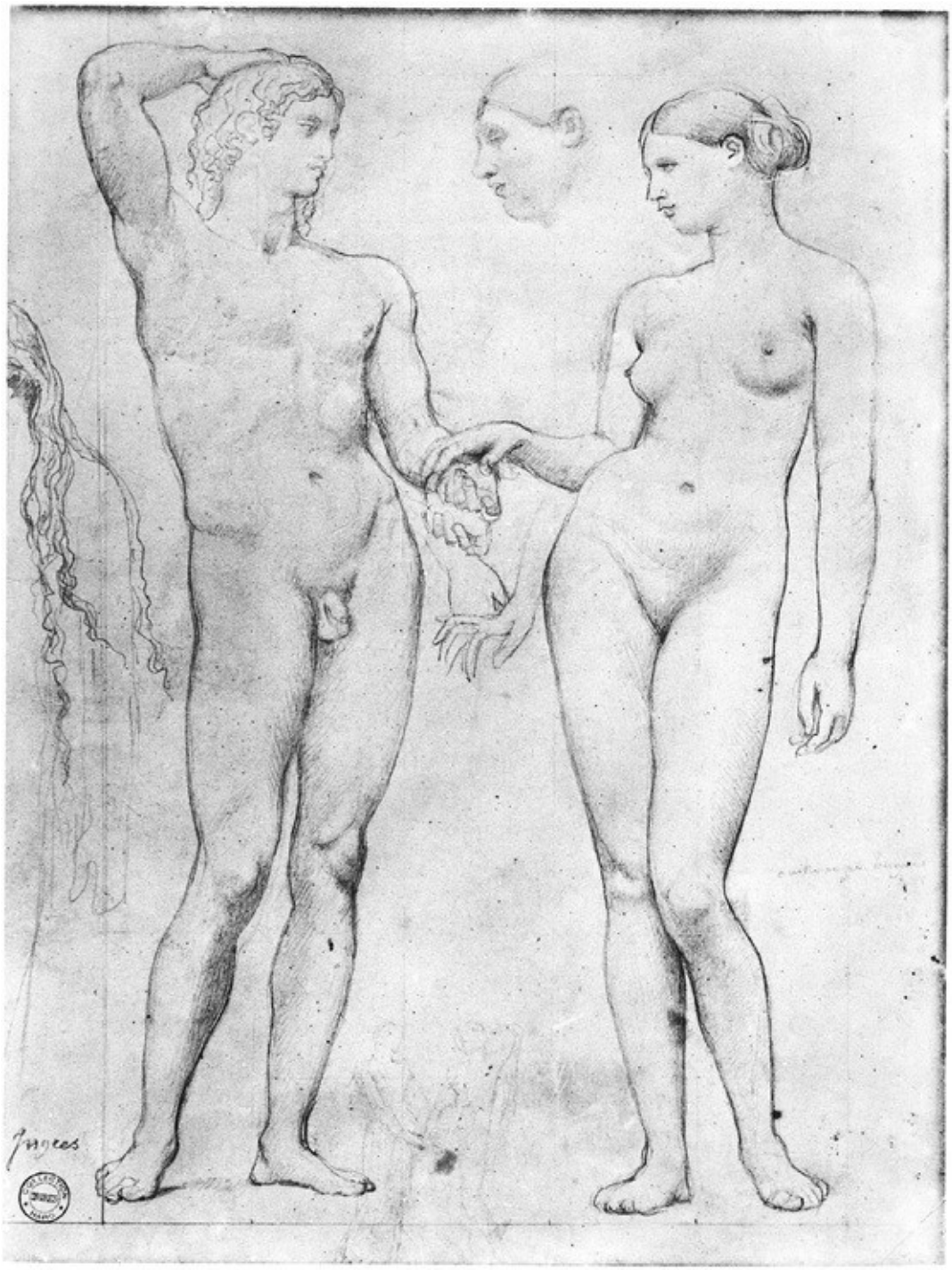


Fig. 70 Study of a male and female figure for L'age d'or by Ingres; Fogg Museum, Massachusetts, U.S.A. Apart from illustrating the main differences of sex, this drawing is a fine example of Ingres' clear linear style. The line is very delicate and expressive, caressing the forms and flowing rhythmically. It may be possible to observe the plumb-line passing through the female figure from head

to foot.

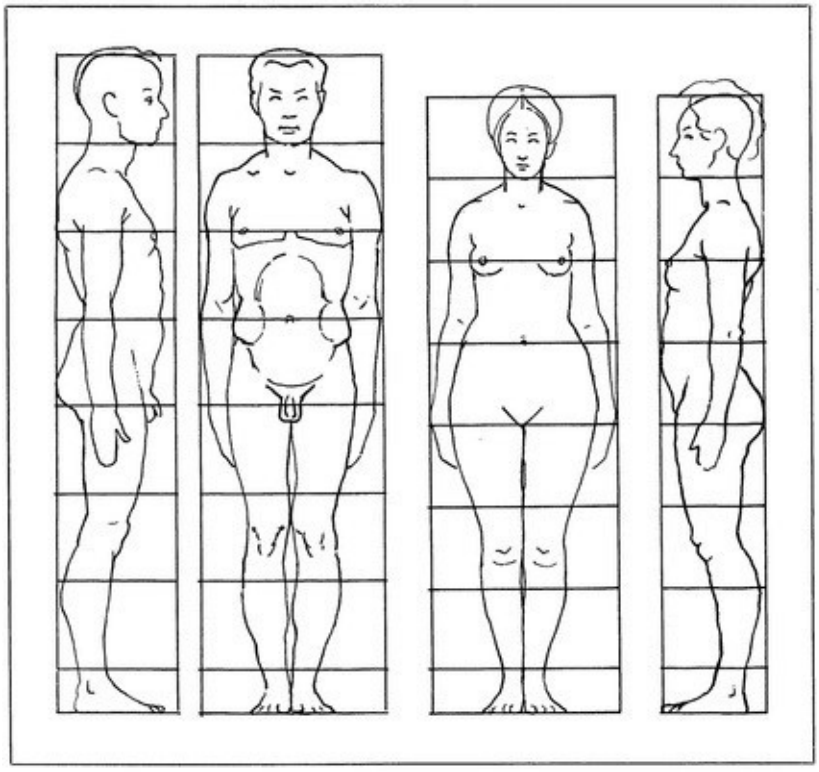


Fig. 71

In an athletic male all the muscles of the trunk are highly developed; particularly noticeable is the external oblique (figs 46 and 47) which may form a heavy roll over the pelvic bone. In this area the female is much more heavily padded with fat, especially around the thighs and buttocks, and the whole pelvis takes on a definite box-like form.

In the limbs the muscle and bone structure is much more apparent in the male than in the female, making the forms more rugged. The difference made by the fatty padding is clearly contrasted when the legs are close together standing at attention. In the male, gaps can nearly always be seen between the thighs about

half-way down and also below the knees and below the calves. In a well-built female these gaps are often closed right down the leg. The form of the kneecap can usually be seen in the male looking rather knobbly, while in the female it is buried deeply in fat.

Proportions of the body

As far as proportions are concerned it is unwise, at any rate in direct drawing, to accept any of the popular canons. A man's height may range from 5 ft to 6 ft 6 ins without comparable variation of head size. In fig. 71 the diagrams of male and female figures indicate the main differences of shape and size based on figures of average height, i.e. about 6 ft (male) and 5 ft 6 ins (female). Each figure measures seven-and-a-half heads, but when drawing from the model do not assume that this must be so—do not assume that the second head depth must cut through the nipples or the third through the navel. How monotonous drawing would be if this were so. One of the most interesting features of figure drawing is to find out how and by how much each individual departs from the norm. In a standing pose measure as often as possible—measure the number of heads into the total length, but do it with great care—measure every length, every width.

Rules of proportion may have some value in drawing from memory, for example when creating the basic figures for costume work. It is true that some Renaissance artists—Piero della Francesca, Leonardo da Vinci, Dürer—made researches into canons of proportions of the figure. This was, I think, not because they believed them to be true but because, believing Man to be the central feature of the universe made in the image of God, they sought mathematical rationalization of his proportions in the pursuit of the perfect being.

The head

I have allotted a special section to the head because it is the focal centre of the human being. It is in the head that we recognize, more than anywhere else, the character of a person. When conversing it is the head we look at. We have a special branch of drawing, painting, sculpture and photography which we call portraiture. In portraiture we may dress the figure in elaborate robes, place it in exotic settings, but always we shall return to the head to identify the character of the sitter.

In drawing the head, pure anatomical knowledge may count for less than it does elsewhere in the figure because much of the bone is deeply disguised by outer covering and many of the muscles are difficult to recognize. I believe that it is more valuable to appreciate the formal qualities of, say, an eye in its socket or a mouth on the jaw, as I hope to discuss in due course. But first a few notes on the main anatomical features of the head.

The skull (fig. 72)

Broadly speaking the skull is in two separate parts: 1, the bones of the cranium and upper part of the face; 2, the bones of the mandible or lower jaw.

The cranium and upper face contain a number of separate bones which are however 'knitted' together so strongly that they virtually form a rigid mass.

From the front are seen the frontal bone (forehead), the short stump of nasal bone, the two malar or cheek bones, and the maxilla (upper jaw). On each side of the skull are the rather concave temporal bones. Connecting the temporal bones to the cheek is a bridge of bone called the zygomatic arch. Set into the upper jaw are sixteen teeth. The nasal bone is very short, the rest of the form of the nose

being built up from cartilage.

Not the least interesting features of this part of the skull are the holes in it—three important ones being the two eye sockets and the nose. The eye socket is quite large and roughly rhomboidal in shape, tending to droop away from the nose. Seen from the side the eye socket is tilted forward, that is to say, the bones of the forehead overhang those of the cheek. The nasal orifice is a narrow triangular shape and it also is tilted forward.

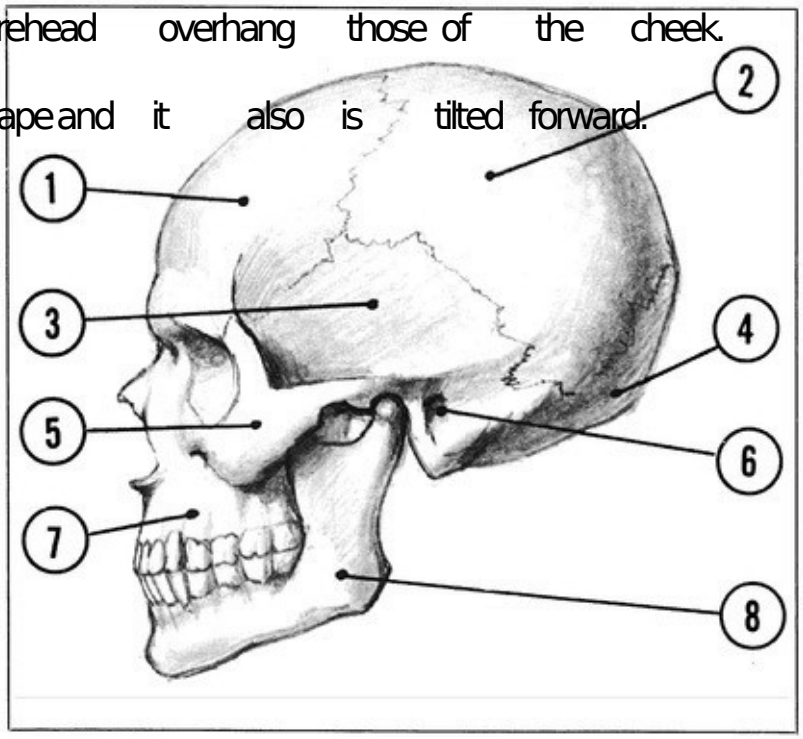


Fig. 72 Bones of the skull

1. Frontal bone
2. Parietal bone
3. Temporal bone
4. Occipital bone
5. Malar bone and zygomatic arch
6. Auditory canal
7. Maxilla
8. Mandible

A significant feature of the maxilla and front teeth is the pronounced prominence they reveal from the side view.

The mandible or lower jaw is a strongly constructed bone, flowing backwards and upwards to a two-pronged head. The rear-most of these two prongs is rounded to enable it to revolve in the socket prepared for it under the temporal bone. The other prong is for the attachment of the temporal muscle (fig. 73). The mandible also contains sixteen teeth which integrate with those in the maxilla.

The eight teeth on each side of each jaw are—two incisors (biting or cutting teeth), the upper ones usually overlapping the lower; one canine, very strong, perhaps for tearing and gripping; two bicuspid and three molars for chewing. The front teeth continue the high arch of the jaw bone.

The only evidence of an ear is a small hole in the skull below the zygomatic arch and behind the joint of the mandible.

Main muscles of the head (fig. 73)

Two powerful muscles operate the mandible, the temporal and the masseter. The temporal is a large fan-like muscle covering almost the whole of the temporal bone. Its fibres converge downwards under the zygomatic arch on to the front 'prong' of the mandible. The masseter rises from the cheek bone and moves diagonally backward to attach to the lower edge of the mandible. These two muscles are used in biting and chewing and bring great power to the jaw. The girl in the circus who hangs by her teeth from a strap depends on these muscles for her life. By contrast, the muscles which open the jaw (underneath the chin) are quite small and weak.

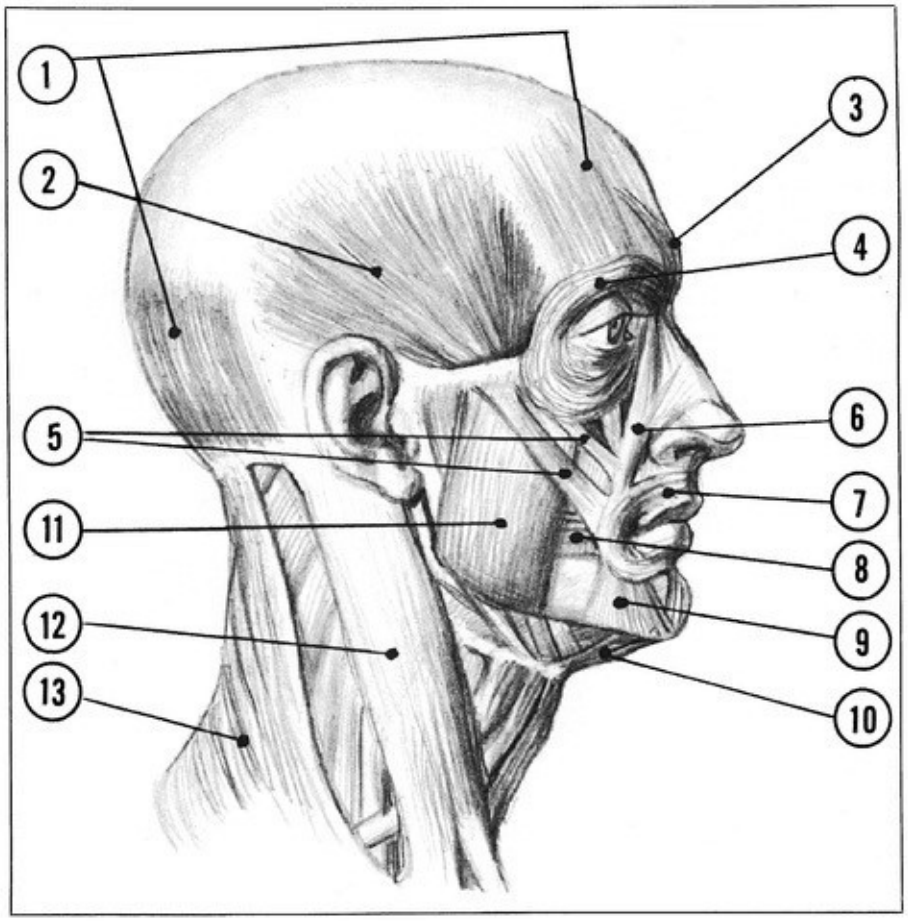
The eyeball is set fairly deep in the socket and is held in place and activated by a large muscular mass which makes an approximately circular patch over the eye socket.

The mouth is made up of a large elliptical area of very fleshy muscle covering a large part of the upper and lower jaws.

Fig. 73 Muscles of the head

1. Occipito frontalis
2. Temporalis
3. Pyramidalis
4. Orbicularis oculis

5. Zygomaticus major and minor
6. Elevator of nostril and mouth
7. Orbicularis oris
8. Buccinator
9. Depressor of angle of mouth
10. Digastric
11. Masseter
12. Sterno-mastoid
13. Trapezius



The familiar form of the nose is realized by a construction of cartilages. This in turn is covered by small muscles which pull downward towards the corners of the mouth.

The fleshy part of the cheek is covered by a muscle called the buccinator, which pulls across from the jaw bone to the corner of the mouth.

Within the small area of the face there are many more muscles, all very important in producing shades of expression, but I do not think it serves a useful purpose to enumerate them here. Most of the more important ones can be seen in fig. 73. Much more vital in drawing the head is to try to understand the basic form and pattern made up by bones and muscles.

Forms of the head

It would be easy but not necessarily true to assert that the head is generally ovoid. Whether or not this is so depends not only on the head itself but on the artist interpreting it. Sometimes a head, particularly a male head, may have cubic characteristics or a draughtsman may seek out the cubic qualities in it.

Figs. 74–9 Photographs taken while a drawing of a head was in progress.

Fig. 74 Shows the first impression of the head as an oval. Lines only have been used to define the shape of the oval.

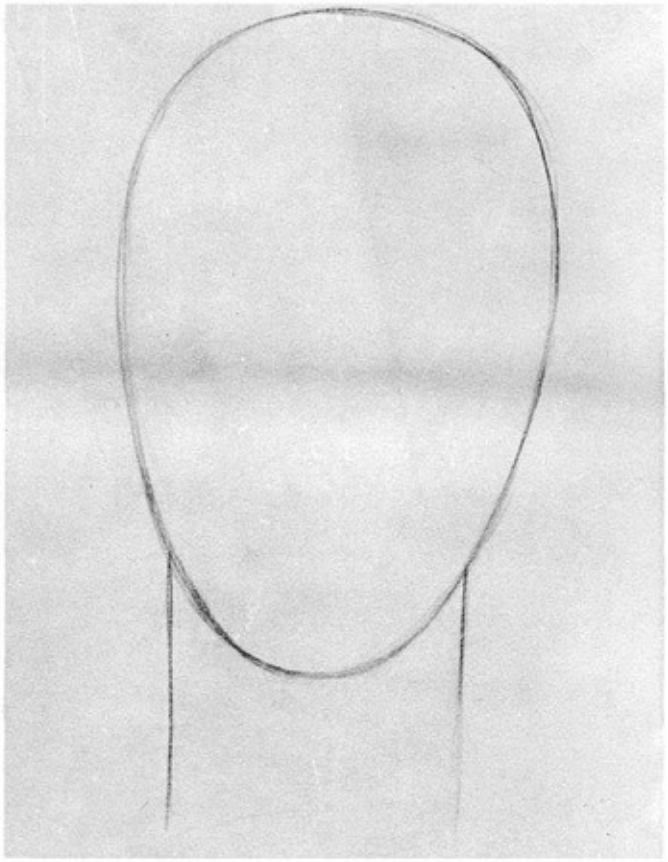


Fig. 75 In this second development the oval 'shape' has been taken further to create a 'form'. This has been done by supposing a light to shine on the oval from the upper left. The ovoid has been set upon a cylindrical neck. The ovoid casts its own shadow across the cylinder.

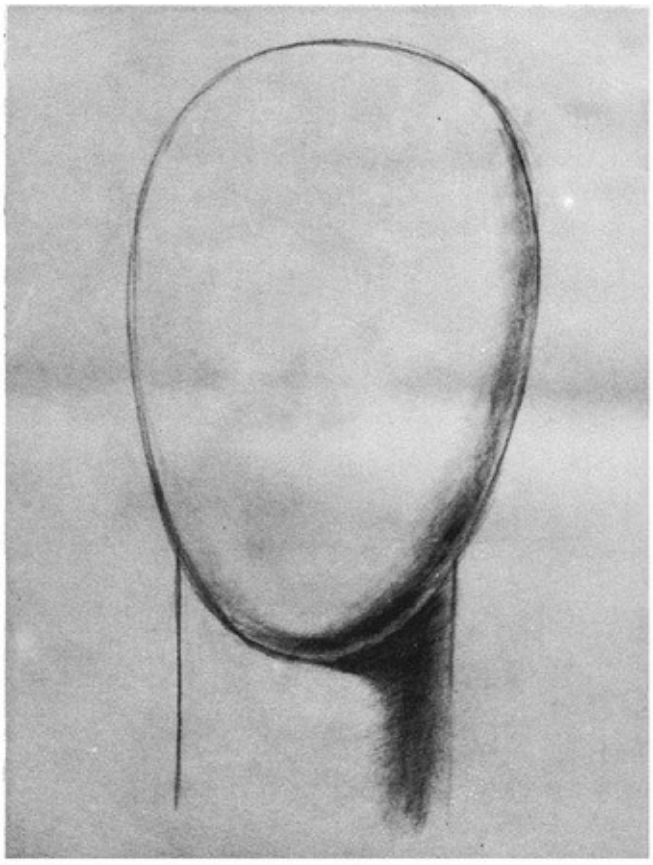


Fig. 76 When this photograph was taken hollows had been pressed in the ovoid for eye sockets and the nose form had been built out.

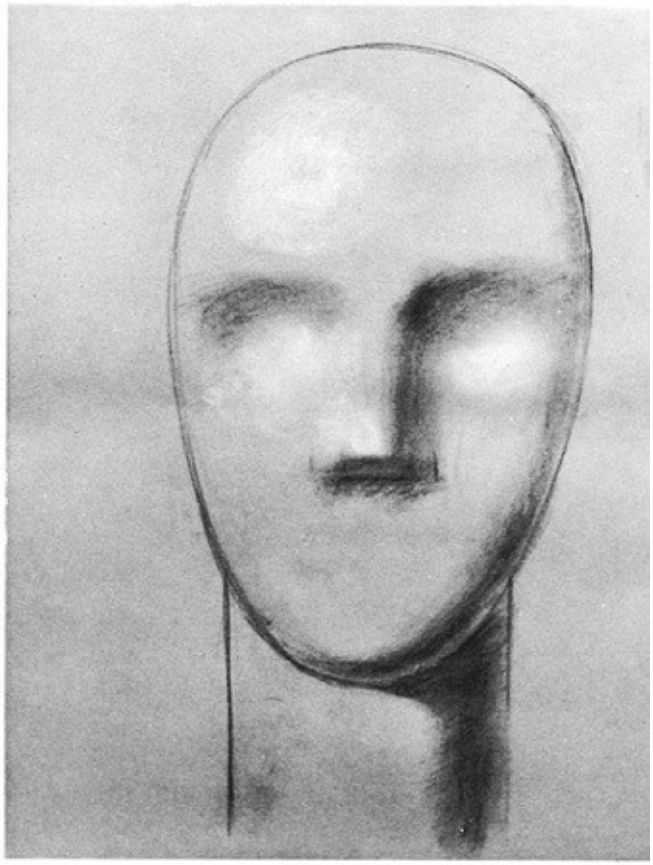
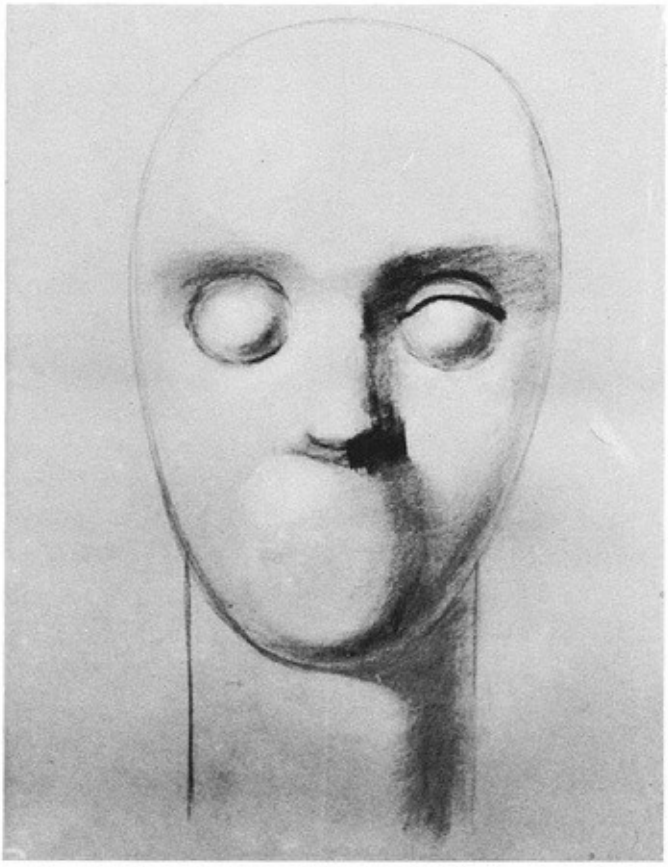


Fig. 77 Quite a number of ideas have now been developed. The arch of the jaw has been suggested rising out of the plane of the ovoid. The base of the nose has been shaped to create the basis of the nostrils. The eyeballs (like table tennis balls) have been inserted in the sockets. Across the surface of the right eyeball the curved line of the upper lid has been drawn.



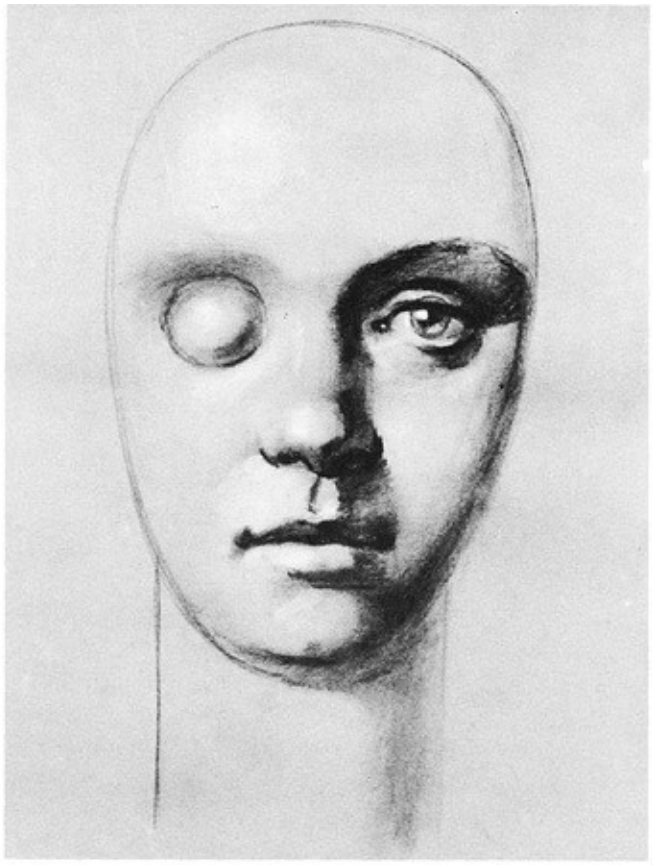


Fig. 78 At this stage the left eye socket is more fully modelled, the line of the eyebrow is sharper, the eyelids have been drawn round the ball and the iris drawn, about one-third of it being hidden below the lid. The nostrils have been inserted in the base of the nose and the upper jaw more strongly modelled to include the 'dip' in the middle. Across the arch of the jaw the mouth has been drawn, the upper lip fairly dark, the lower lip quite light. The hollow immediately under the lower lip has been 'carved out' and the form of the chin developed.

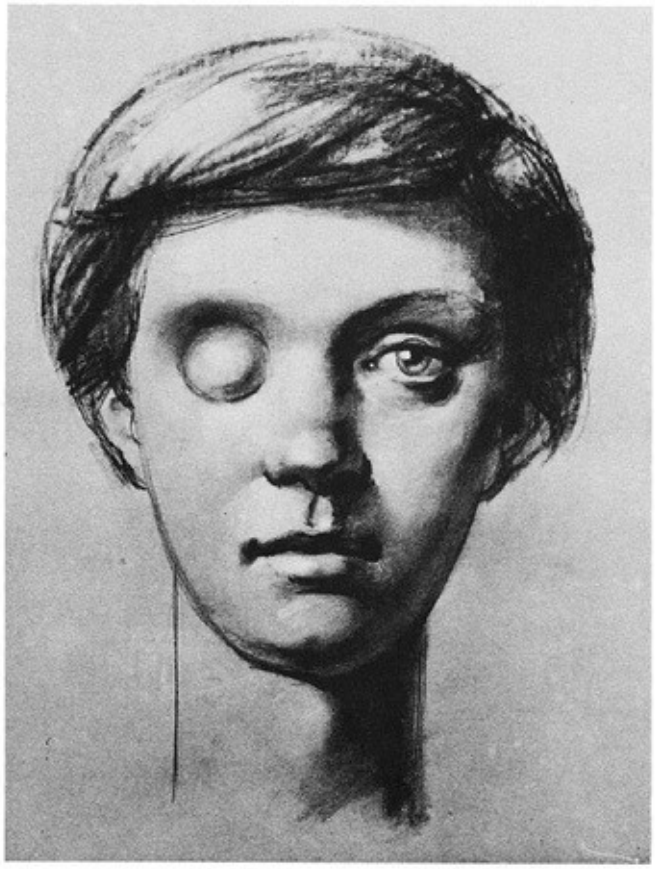


Fig. 79 In this last stage the hair and ears are added. The shadow of the head across the neck is strengthened, and the form of the throat suggested.

The details of the head contain many problems and subtleties to tax the draughtsman.

When drawing the eye in its setting it is essential to bear in mind, all the time, the idea of a ball set in a hollow. In fig. 80 (where the light comes from the left) the receding plane between nose and eye socket is in deep shadow. The upper lid is 'wrapped' around the eyeball partly by observing its curvature, but partly by noticing that the form is gradually turning away from the light. More often than not the light will be above the head and this will cause the line of the upper lid to

appear dark for three reasons—1, the thickness of the lid will be in shadow; 2, it is bounded by eyelashes which are often fairly dark except in very blonde persons; and 3, eyelashes and lid cast their shadow over the upper part of the eyeball. By comparison, under the same lighting conditions the thickness of the lower rim is almost invariably light. This produces a very characteristic pattern

in the drawing of the lower rim where it moves across the eyeball; it may be clearly defined where it passes under the coloured iris, but will fade into the white of the eye. Any attempt to force this edge results in a hard, insensitive drawing.

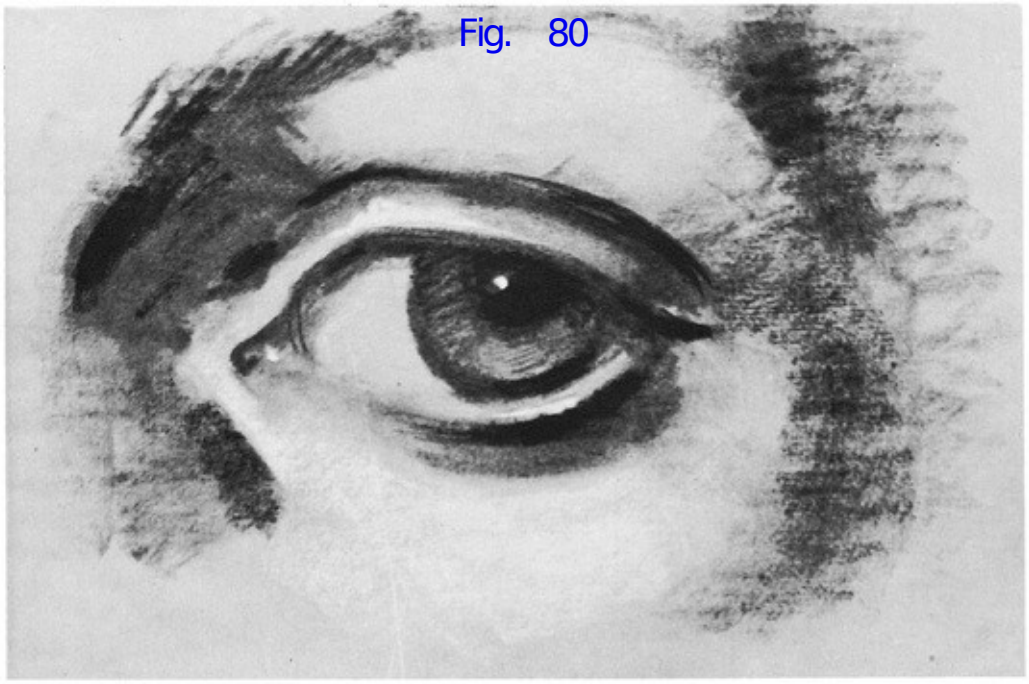


Fig. 80

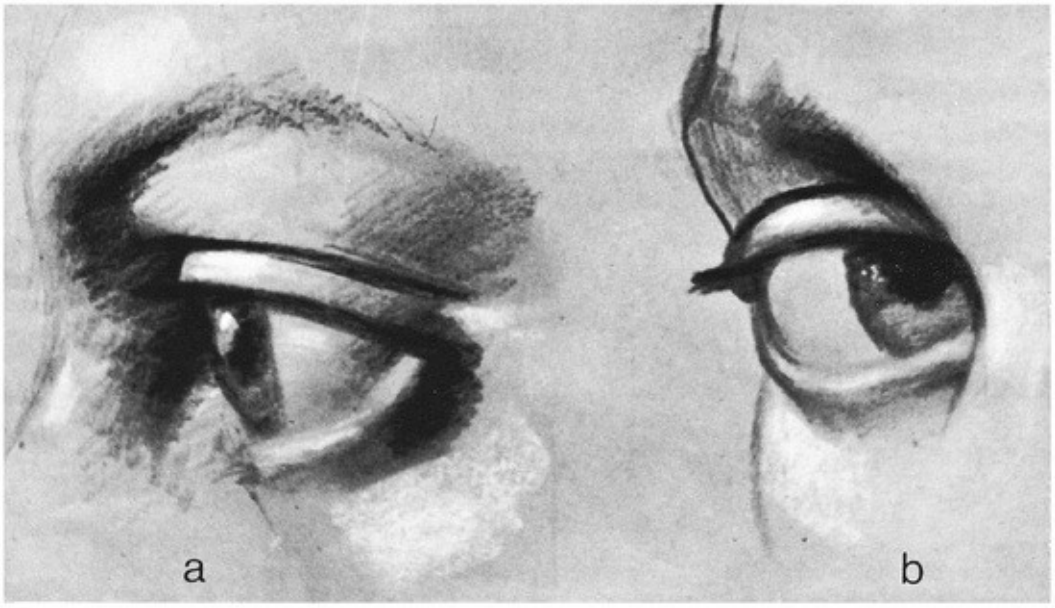


Fig. 81

In the side view of the eye (fig. 81 a) I have stressed the overhang of the upper lid beyond the lower, and indicated the irregular shape of the cornea as it moves around the ball. Seen from the front it is quite round, but from the side it projects from the ball surface. It will be seen that whereas the left-hand edge is very full, the right-hand edge is to a considerable degree a compromise between the curve of the cornea and the curve of the eyeball. The pupil is a hole through which light may pass and it therefore appears dark. This is surrounded by the iris or coloured portion. Light shining through the transparent cornea strikes this coloured portion and is reflected outwards. It is characteristic that the brightest part of the colour is always diametrically opposite the source of light and the highlight.

The nose is most easily drawn from the side (fig. 82 a) but comparatively few

portraits are painted in profile (the portrait of a woman by Baldovinetti in the National Gallery, London, is a notable example). When drawing the nose in profile it is very important to ensure a realization of the underplane. The nostril is surrounded by flesh and this flesh has a definite thickness. Too often the edge of the nostril is allowed to serve as the boundary of the underplane. This is quite wrong and strictly speaking absurd. In the three-quarter view (fig. 82 b) another frequently occurring phenomenon is the disappearance of the edge of the nose. Where the light pours across the nose, as in the sketch, it will often happen that

the colour and tone of the nose may be almost exactly the same as that of the far cheek. I have referred to this disappearance of edge in more detail on page 34 (figs 30 and 31). It may happen that the edge of the nose is strongly silhouetted against the dark shaded part of the far eye socket and is not clearly visible again until the contour turns under into shadow. When this does happen it is very often accompanied by strongly defined shadow down the near side of the nose so that what is lost on one side is restored on the other. In studying the profile of the nose it will be seen that at the top (the bridge) the form is concave whilst at the tip it is convex. Both these areas will normally reflect light back to the draughtsman, thus producing highlights (fig. 27).

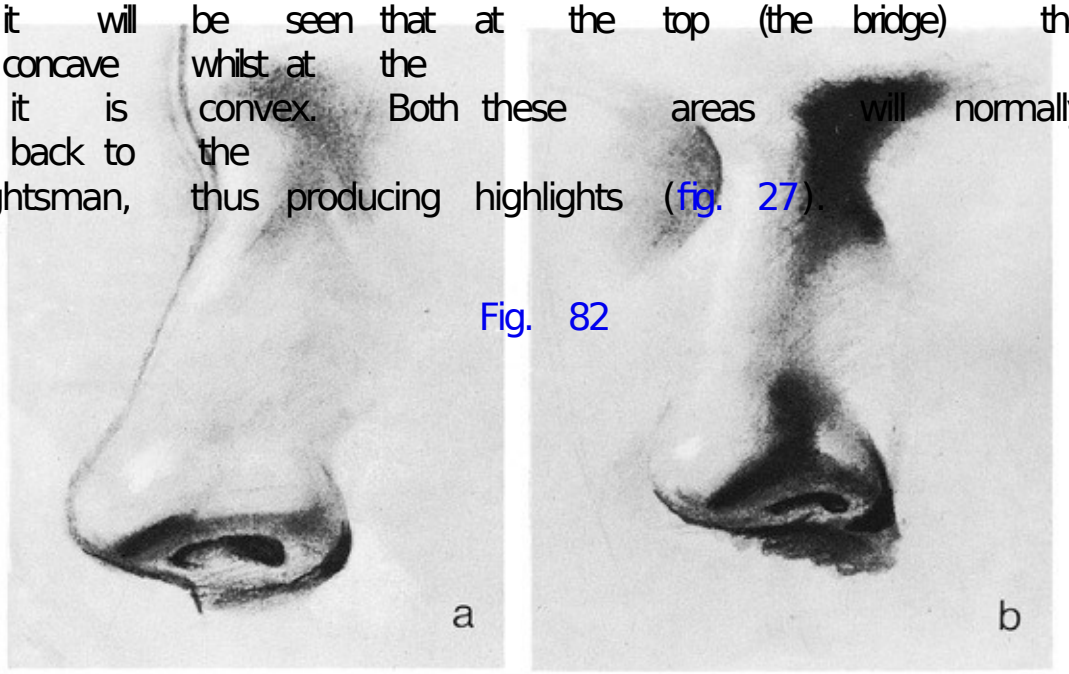


Fig. 82

Inexperienced draughtsmen often assume that the projecting shaft of the nose

must be very light, but this is not always true. The intensity of light which we see coming from the head (or any object) is more connected with the angle at which it reflects the light back to the viewer than with the amount of light the surface receives. For example, a mirror receiving light can be made to reflect it back to a specific point according to the angle at which it is held.

Great care should be taken to ensure that the nose, having projected outwards

from the plane of the face, returns to the face. This may best be done by following carefully the middle axis throughout the length of the nose, round the tip and along the cartilage between the nostrils until it reaches the upper jaw.

One of the most important features of the frontal jaw area, upper and lower, is the high arch shown in fig. 77. This form always rises to a greater or lesser degree out of the general plane of the face, and the mouth would appear to 'wrap' round it (fig. 83). The effect of this arch will be apparent in the three-quarter view (b) where the far side of the mouth becomes very foreshortened.

Determining the width of the mouth are two almost vertical folds of muscle which vary considerably in prominence but are always important to notice.

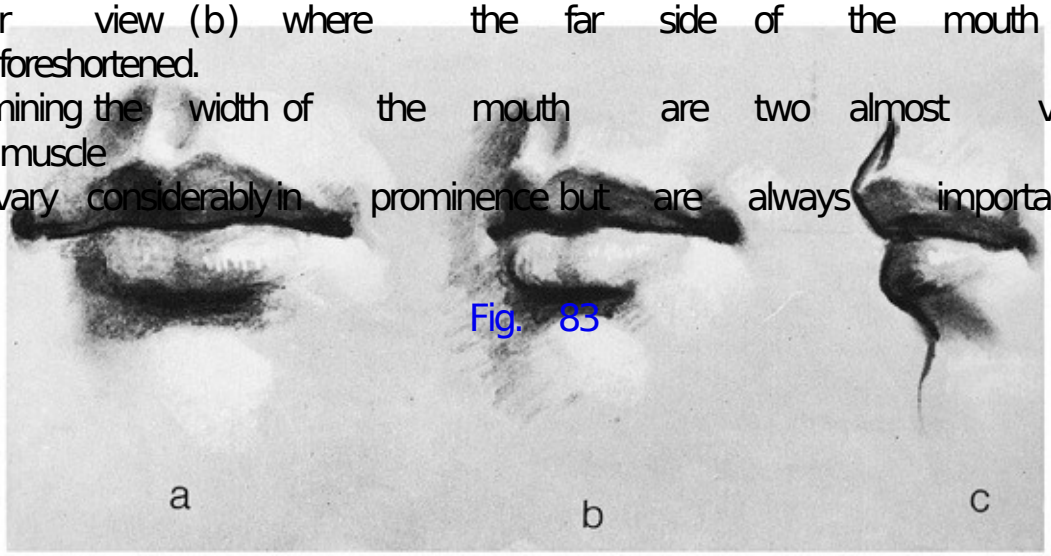


Fig. 83

In c the relationship between the upper and lower lips can be seen. Normally and ideally the upper lip overhangs the lower but this does not always happen and in

portraiture the exact relationship would have to be sought. In normal lighting conditions, i.e. with a top light, the upper lip is in shadow and therefore clearly defined. The lower lip is much more delicate (unless strongly defined with lipstick) and some parts of it, mainly towards the outside, may often have practically no visible contour (a).

The ear is in two sections, the upper part being mainly a volute of cartilage, the lower (the lobe) mainly fatty tissues. Essentially it is a flat, oval plate, lying

close to the side of the cheek. It appears to join on to and continue the line of the jaw bone and therefore it usually has a strongly diagonal axis (fig. 84). Its position in regard to the other features of the head is important. When the head is erect the ear, roughly speaking, is opposite the eyebrow (top) and nostril (bottom). The orifice in the ear is almost exactly opposite the pivotal point of the head, consequently when the head drops the ear will appear to be above the eyebrow, but when the head is raised the line from eyebrow to ear is downward.

When drawing the head, the ear should not be neglected. It is as variable in character and position as any other feature and when badly drawn or placed can wreck an otherwise good drawing.

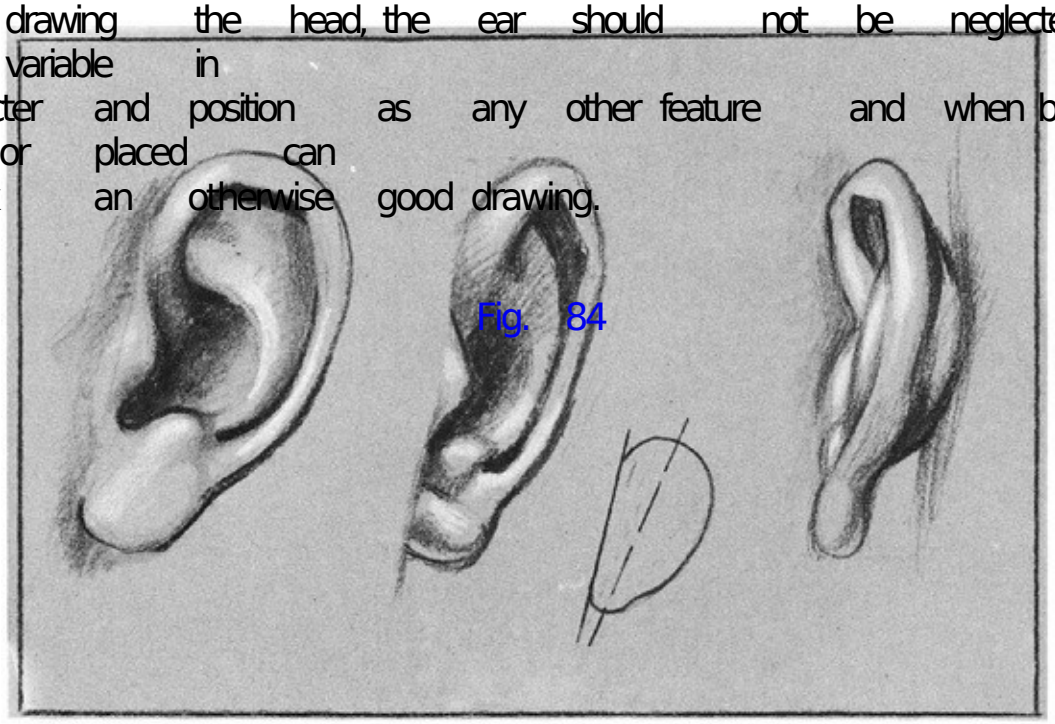


Fig. 84

Fig. 85

Hair also calls for thought and study. Most important is the general form which fits closely round the skull like a cap or wig. When this main form is understood the surface rhythms may be examined in terms of the flow of the more important locks of hair. Eventually these locks may be 'stroked' to suggest the finer hairs. Beginners often find the form of the hair difficult to express and either leave it untouched or apply a flurry of 'hairy' strokes with more hope than conviction—nor is it enough to rely wholly on the 'shine' to make it look convincing. In pure drawing the colour and shine would be ignored and only the pure form expressed (this would also eliminate colour such as the eyebrows, eyelashes, irises and lips). In fact, in portraiture colour is often a very vital part

of character and it is usual even in monochrome to indicate something of the tonality of all these features.

Spectacles are quite difficult to draw and care must be taken to ensure the correct perspective and also the correct angle for the axes of the lenses. When placed on the face they become very much a part of the person, and there can be no question of drawing the face first without the spectacles. Sometimes the glass

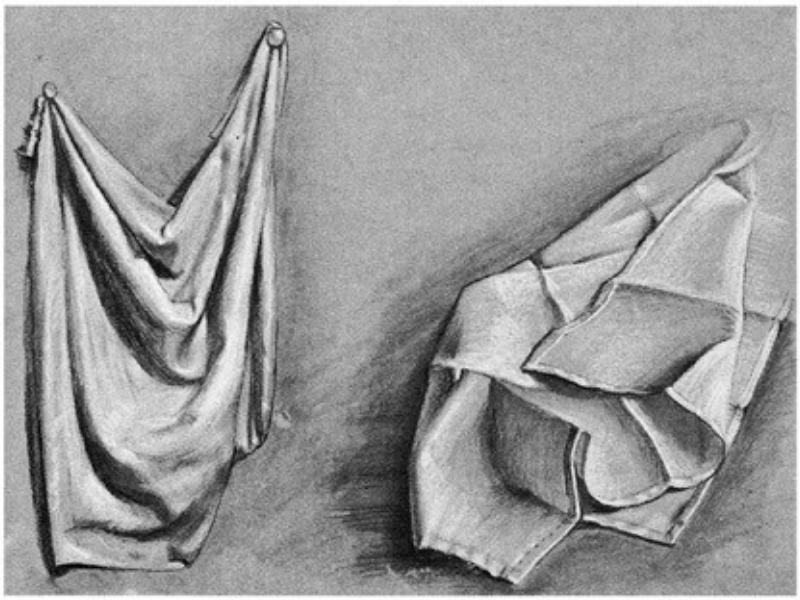
lens distorts the form behind it and this should be observed. The frame almost invariably casts its own shadow over the eye socket and the cheek. This is quite important as it may help to show where the frame touches the face and where it is more distant.

Fig. 86

Accessories

Most of what I have said so far has related to the figure in its natural state, but a great deal of drawing has been and will be done from the clothed figure. When a human being wears clothes they become very much a part of him and therefore part of his anatomy. For instance, when an arm is covered by a sleeve it must be drawn in terms of the anatomy of the cloth and not of the (invisible) muscles. It would be impossible to discuss all the different types of clothing but a few general principles are fairly common. In the following pages I have discussed some items of clothing in relation to the figure.

First, the cloth itself. In fig. 87 a a handkerchief has been soaked in water and then hung from two points. In this limp state, unnaturally heavy, it hangs in long folds—very beautiful, natural and drawable. This type of study was very popular in Victorian times. At b a handkerchief, washed and ironed, is laid out. It has a crispness of line which is absent in a. The hems are clear and sharp.



a b

Fig. 87

Fig. 88 Detail from portrait of William Clayton by Sir Godfrey Kneller (1646–1723); Walker Art Gallery, Liverpool. This shows the characteristic of velvet where the light reflects off the 'nap' on the edge of the folds and the edges are soft.

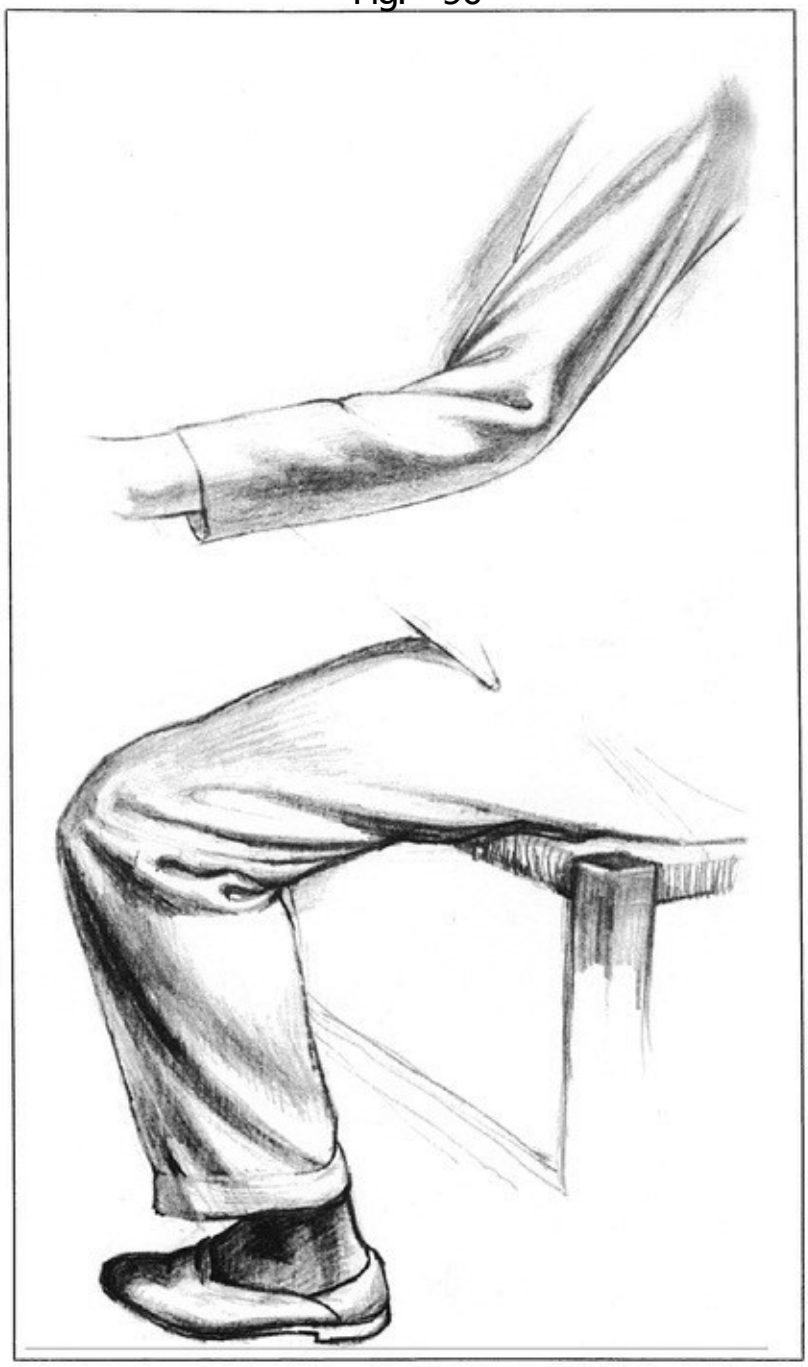
Fig. 89 Detail from portrait of Elizabeth Cotman by Allan Ramsay (1713–1784); Walker Art Gallery, Liverpool. Here the reflection from the smooth-faced satin comes from the top of the folds. The edges tend to be sharp and straight.

When a clothed limb bends, it stretches the material on the outside and compresses that on the inside. In the case of the arm the most apparent shoulder and armpit and elbow joint. The cloth tends to stretch from shoulder towards elbow and to gather into deep folds at armpit and elbow. In the leg the corresponding areas are buttock and groin, and knee. Students of drawing often

shirk the drawing of these folds. Different materials produce different qualities of form and rhythm as shown by the velvet and satin in figs. 88 and 89. In clothing, the material often has a lining, sometimes a stiffening, nearly always a hem of several thicknesses. All these factors make the cloth more resistant to

bending and cause folds to occur in the same places. Jackets and trousers which are worn very regularly develop creases in specific places—in fact they are usually not comfortable to wear until this happens.

Fig. 90



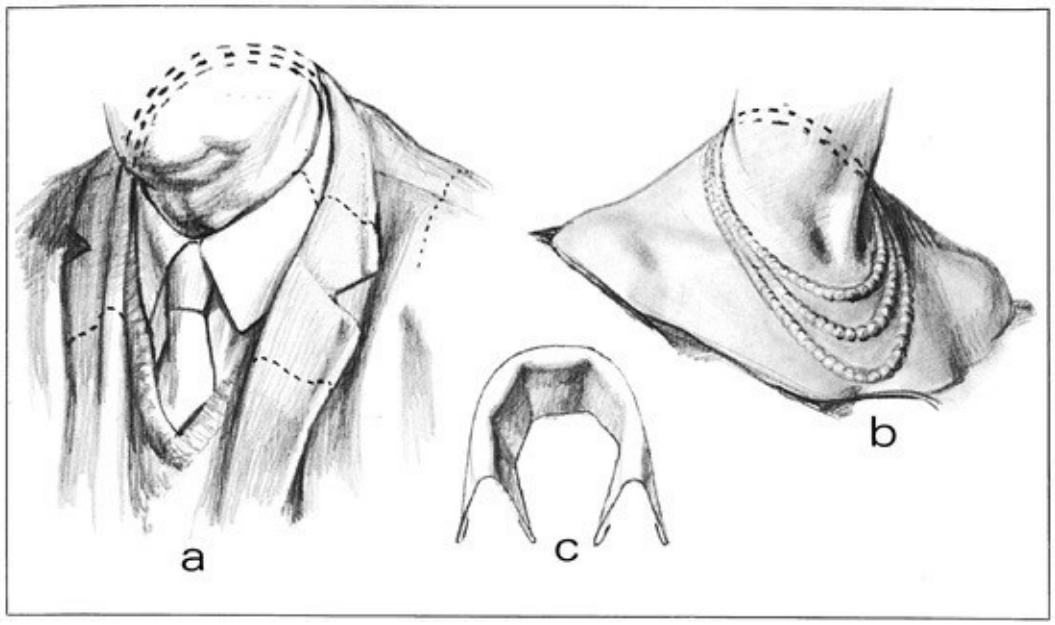


Fig. 91

In fig. 91 I have drawn various items of dress in relation to the neck. This is essentially a column, as I suggested earlier, and the collar, jacket and necklace are all made to fit round it. It is very important to visualize the continuity of all these items round the back of the neck (dotted lines). In a I have shown different materials—the crisp white collar, the heavy cloth of the jacket (the lapels made of several thicknesses of material) and the woollen jumper (with its less severe lines).

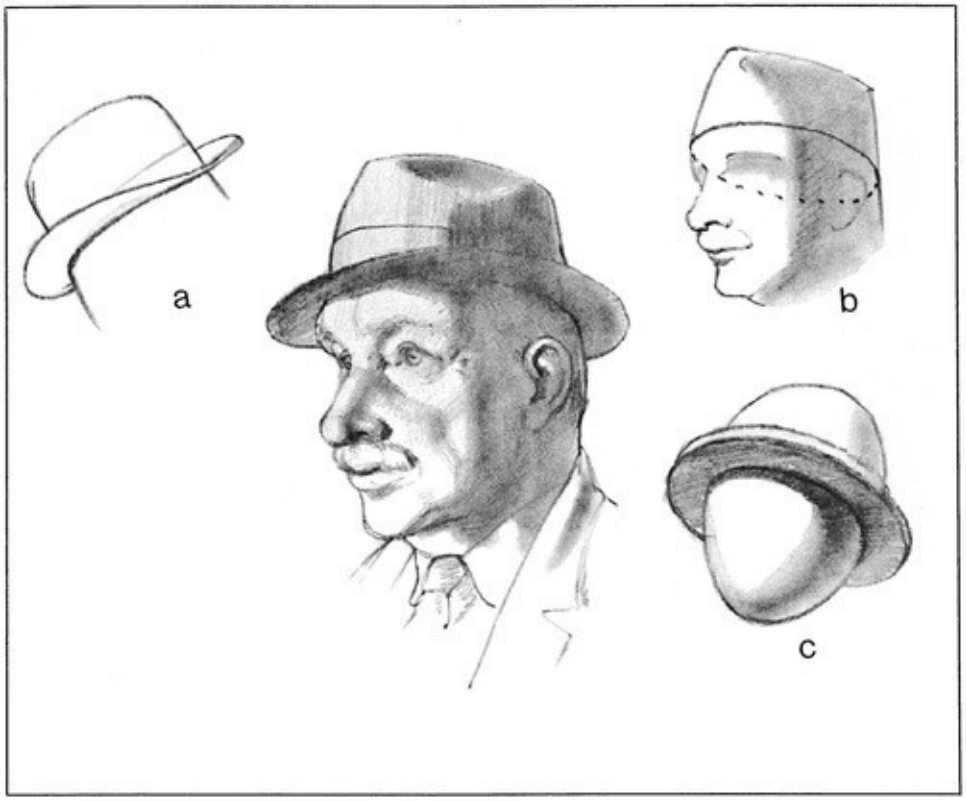


Fig. 92

With the necklace, b, the concentric rings must fall naturally round the neck and over the chest. They may be slightly diverted if the collar-bones are prominent.

At c I have made a diagram of a piece of fairly stiff cloth such as a collar, doubled over and bent to fit round the neck. Because the inside edge covers a shorter distance than the outer it tends to buckle at certain points producing a curve made up from a number of straight lines.

In the diagrams surrounding the head in fig. 92 I have eliminated the brim (b) and the crown (c), to try to clarify the 'oneness' between hat and head. This is nearly always apparent in men's headgear where the hat is wedged tightly onto the head to prevent it blowing off The hard bowler (a) does not so readily adapt

itself to the shape of the head as does the soft hat but its brim has a much firmer line and a lovely rhythm. It is more difficult to generalize about women's headgear as it does not always lie close to the head.

In the case of the man's shoes (fig. 93) I have deliberately chosen an old, well-worn pair—the leather softened and falling naturally into regular folds imposed

by the foot of the wearer. The heel is low, the instep arch rather flat. The woman's shoe is a very cunning piece of design—not only does the heel give her extra height, but owing to the sloping angle of the instep the distance on the ground from heel to toe is shortened, thus making the foot look 'petite'. The shiny surface makes dark shoes difficult to draw. Look for the pattern they make against the floor and in relation to each other; do not ignore the shadow they throw along the ground.

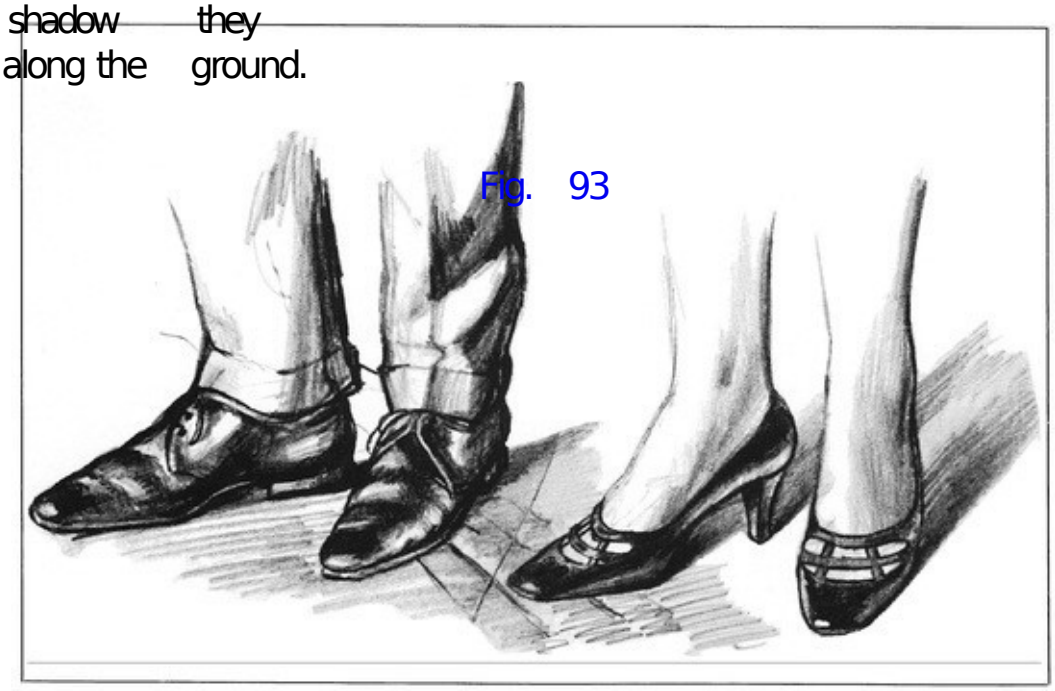


Fig. 93

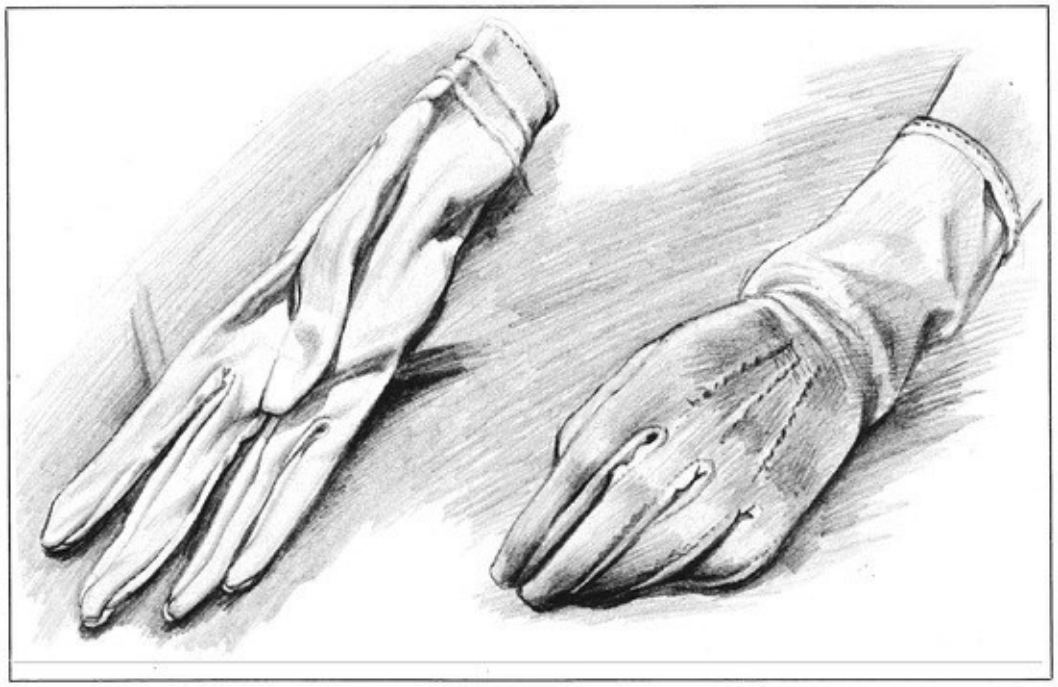


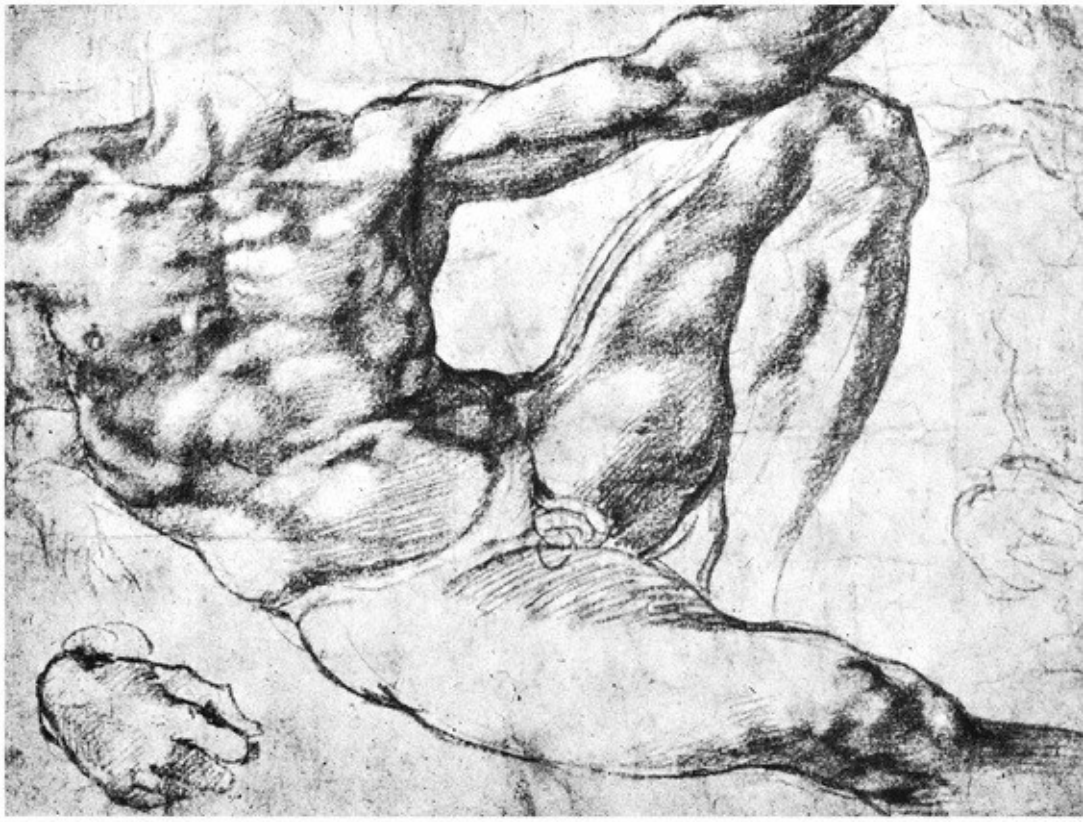
Fig. 94

In the drawing above I have shown an empty glove and one with a hand inside. The former is relatively shapeless, the fingers flat and flaccid. Something of the quality of the material is apparent in the thickness of the folds and seams. In the second sketch the glove is stretched taut on the hand and articulates with the joints. It is only at the wrist that the form remains rather limp.

Conclusion

In this short book it has been my aim to draw your attention to three important factors in figure drawing—1, the elements of geometrical principles in relation to measurement and to the representation of basic forms; 2, the relationship between the eye, the light source and the object to be drawn; and 3, ~~those~~ elements pertinent to drawing of which the human body is composed.

Fig. 95 Study for the Creation of Adam by Michelangelo.



Points 1 and 2 relate to the representation of all types of form and if valid are probably much more important than point 3. I believe it is no coincidence that the Greeks and the Florentines were great mathematicians and great masters of form and draughtsmanship. Leonardo da Vinci warned against over-enthusiasm for anatomical study (page 40) but I doubt if he would have thought a warning against geometry necessary.

The best tuition in figure drawing is that given in relation to specific problems arising while a drawing is in progress. I would therefore recommend that, if you want to become a figure draughtsman, you should for a time take part in a class or group receiving advice from a tutor whose background as a draughtsman you can respect. My book can be no substitute for this. It is not important that you

should agree with every suggestion made in it. If, in the course of your studies, you find some of my ideas either acceptable or providing food for thought, then I shall have succeeded.

If by chance you have skipped only lightly through this book, may I beg of you not to miss perhaps the wisest words in it—the introductory quotation from Sir Joshua Reynolds, beautifully phrased and wonderfully true. The same

sentiment has been attributed also to Thomas Edison, the inventor, when he said more crudely and pithily, 'Genius is one per cent inspiration and ninety-nine per cent perspiration'.

Go to it . . .

Notes on the illustrations

Frontispiece. From Tables of the Skeleton and Muscles of the Human Body by Bernard Siegfried Albinus, London, 1749. This large book of anatomy contains many plates showing the build-up of the figure from the skeleton through various layers to the subcutaneous muscles, plus many details of bones and muscles. Each of these plates is a work of art in itself, the background and accessories being conceived and engraved with as much care as the figure itself.

Fig. 10 Robert Clatworthy, the sculptor, was born at Bridgewater, Somerset, in 1928. He studied at the Slade School of Art where this drawing was made in 1952. His work is represented in the Tate Gallery and other important collections.

Fig. 32 A Lady at her Mirror by Jean Raoux (1677–1734); Wallace Collection, London. Although Raoux was not one of the greatest French artists of the period, this work shows all the daintiness and elegance which we associate with the rococo in France—handsome men, pretty (rather than beautiful) women in fine clothes and luxurious surroundings.

Fig. 33 Nude Study by Georges Seurat (1859–91); Courtauld Institute, London.
Seurat studied at the École des Beaux-Arts where he did many very academic studies from life and from the antique. He was fascinated by light and in his paintings developed the theory of Divisionism, in which the colour of light was analysed. This drawing is extremely light-conscious and is a magnificent study of the quality of light falling on and around the figure.

Fig. 55 Study of a figure from the cartoon Soldiers surprised when bathing by Michelangelo (1475–1564); British Museum, London. About 1504 Michelangelo was commissioned to paint a large mural in the Council Hall of the Palazzo Vecchio to balance one by Leonardo da Vinci. In the event neither fresco was realized. This study for one of the figures shows Michelangelo's sensitive use of the pen—rather like a sculptor's chisel criss-crossing the forms.

Fig. 61 The Duchess of Milan by Hans Holbein the Younger (1497/8–1543); National Gallery, London. Holbein, a German, worked during his last decade in England. He is chiefly known as a portraitist and has left behind a wonderful record of the people and costumes of the time of Henry VIII. The Duchess of Milan was a prospective bride for King Henry. Holbein's drawing is clear and unemotional and one can be certain that his portraits are true likenesses of the people represented.

Fig. 62 Le Chapeau de Paille by Peter Paul Rubens (1577–1640); National Gallery, London. Rubens was one of the great personalities of art and indeed of seventeenth-century Europe; a man of tremendous ability, culture and energy. He produced a vast amount of work, conducted a large 'painting factory', was the friend and adviser of kings (Philip IV of Spain and Charles 1 of England). His work seems to gather together many of the qualities of Florentine draughtsmanship, Venetian colouring and Flemish realism. In his hands oil paint

has an exciting fluidity. He is the great master of the Baroque period.

Fig. 70 Study of male and female figures for L'Age d'Or by Jean Auguste Dominique Ingres (1780–1867); Fogg Museum, Massachusetts, U.S.A.

Although his paintings have a certain beauty, Ingres is essentially a draughtsman. All his paintings, portraits and subject pictures, were preceded by numerous drawings. Although he is regarded as the leader of the Neoclassicists in nineteenth-century France, in fact his drawings have a deep sensuousness.

Fig. 88 Portrait of William Clayton by Sir Godfrey Kneller (1646–1723); Walker Art Gallery, Liverpool. Kneller, a German, was trained in Holland and Italy and spent most of his life in England. He was dedicated to portrait painting and soon became the leading painter. His works are elegant and flattering but rather superficial. Due to his success and to his Academy (1711) he exerted great

influence on English painting. Many works were completed by studio assistants.

He is particularly notable for the Kit Cat portraits (National Portrait Gallery, London) which gave a name to a standard-sized portrait canvas (36" × 28") still used by portraitists.

Fig. 89 Portrait of Elizabeth Cotman by Allan Ramsay (1713–84); Walker Art Gallery, Liverpool. A Scotsman, exactly contemporary with Reynolds and Gainsborough, Ramsay was able to compete in the field of portraiture with these two giants although his work is generally less romanticized. This early portrait (1734) shows Ramsay's ability to observe faithfully the characters of his sitters and their clothes. Horace Walpole wrote, 'Reynolds seldom succeeds in women, Ramsay is formed to paint them'.

Fig. 95 'Adam' by Michelangelo (1475–1564); British Museum, London. Not all experts are in agreement on the authenticity of this drawing. It is, however, a magnificent study for (or of) the Creation of Adam in the centre of the ceiling of the Sistine Chapel, Rome. It has great power resulting from perfect understanding of the human body and graceful rhythm of forms, partly inherited from the antique sculpture.

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